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I. STATUS OF CLAIMS

Claims 1-39 are pending.

Claims 17-32 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. *See Examiner's Office action,* p. 4 (14 August 2007).

Claims 17-32 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. *See Examiner's Office action*, p. 5 (14 August 2007).

Claims 16, 32, 33, 34, and 36 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. *See Examiner's Office action*, p. 6 (14 August 2007).

Claims 1-4, 7, 8, 10, 11, 13, 17-20, 23-24, 26-27, 29, and 33 stand rejected under 35 U.S.C. § 102(a) as being anticipated by Mulgund *et al.* (2002/0161751). *See Examiner's Office action*, p. 7 (14 August 2007).

Claims 5, 6, 21, and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mulgund *et al.* (2002/0161751) in view of Chiloyan *et al.* (U.S. Patent No. 7,165,109). *See Examiner's Office action*, p. 9 (14 August 2007).

Claims 9, 12, 14, 15, 25, 28, 30, and 31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mulgund *et al.* (2002/0161751) in view of Kung *et al. See Examiner's Office action*, p. 11 (14 August 2007).

Claims 16, 32, and 34-39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mulgund *et al.* (2002/01611651) in view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden *et al. See Examiner's Office action*, p. 13 (14 August 2007).

II. ISSUES TO BE REVIEWED

The issues in this response relate to whether the art of record establishes a *prima facie* case of the unpatentability of Applicant's Claims 1-39. For reasons set forth elsewhere herein, Applicant respectfully asserts that the art of record does not establish a *prima facie* case of the unpatentability of any pending claim. Accordingly, Applicant respectfully requests that

Examiner hold all pending Claims 1-39 allowable for at least the reasons described herein, and issue a Notice of Allowability on same.

III. ARGUMENT: ART OF RECORD DOES NOT ESTABLISH *PRIMA FACIE* CASE OF UNPATENTABILITY IN VIEW OF CITED ART OF RECORD

The Office action states, "Claims 17-32 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter." *See Examiner's Office action,* p. 4 (14 August 2007).

Further, the Office action states, "Claims 17-32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement." *See Examiner's Office action*, p. 5 (14 August 2007).

Further, the Office action states, "Claims 16, 32, 33, 34, and 36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention." *See Examiner's Office action*, p. 6 (14 August 2007).

Further, the Office action states, "Claims 1-4, 7, 8, 10, 11, 13, 17-20, 23-24, 26-27, 29, and 33 are rejected under 35 U.S.C. 102(a) as being anticipated by Mulgund *et al.* (2002/0161751)." *See Examiner's Office action*, p. 7 (14 August 2007).

Further, the Office action states, "Claims 5, 6, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund *et al.* (2002/0161751) in view of Chiloyan *et al.* (U.S. Patent No. 7,165,109)." *See Examiner's Office action*, p. 9 (14 August 2007).

Further, the Office action states, "Claims 9, 12, 14, 15, 25, 28, 30, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund *et al.* (2002/0161751) in view of Kung *et al.*" *See Examiner's Office action*, p. 11 (14 August 2007).

Still further, the Office action states, "Claims 16, 32, and 34-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund *et al.* (2002/01611651) in view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden *et al. See Examiner's Office action*, p. 13 (14 August 2007).

In response, Applicant respectfully asserts herein that, under the MPEP and legal standards for patentability as set forth below, the art of record does not establish a *prima facie*

case of the unpatentability of Applicant's claims at issue. Specifically, Applicant respectfully shows below that the art of record does not show or suggest the recitations of Applicant's claims at issue, and hence fails to establish a *prima facie* case of unpatentability. Accordingly, Applicant respectfully requests that the Examiner withdraw his rejections and hold all claims to be allowable over the art of record.

A. MPEP Standards for Patentability[1]

The MPEP states as follows: "the examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability. If that burden is met, the burden of coming forward with evidence or argument shifts to the applicant. . . If examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent." *MPEP* § 2107 (citing *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992)); *In Re Glaug* 283 F.3d 1335, 62 USPQ2d 1151 (Fed. Cir. 2002) ("During patent examination the PTO bears the initial burden of presenting a *prima facie* case of unpatentability. *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1472, 223 U.S.P.Q. 785, 788 (Fed. Cir. 1984). If the PTO fails to meet this burden, then the applicant is entitled to the patent."). Accordingly, unless and until an examiner presents evidence establishing *prima facie* unpatentability, an applicant is entitled to a patent on all claims presented for examination.

1. MPEP Standards for Determining Anticipation

An examiner bears the initial burden of factually supporting any *prima facie* conclusion of anticipation. *Ex Parte Skinner*, 2 U.S.P.Q.2d 1788, 1788-89 (B.P.A.I. 1986); *In Re King*, 801 F.2d 1324, 231 U.S.P.Q. (BNA) 136 (Fed. Cir. 1986); *MPEP* § 2107 (citing *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992) ("[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability....")). Failure of an examiner to meet this burden entitles an applicant to a patent.

[1] Applicant is aware that Examiner is familiar with the MPEP standards. Applicant is merely setting forth the MPEP standards to serve as a framework for Applicant's arguments following and to ensure a complete written record is established. Should Examiner disagree with Applicant's characterization of the MPEP standards, Applicant respectfully requests correction.

Id. ("[i]f examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent").

The MPEP indicates that in order for an examiner to establish a *prima facie* case of anticipation of an applicant's claim, the examiner must first interpret the claim,[2] and thereafter show that the cited prior art discloses the same elements, in the same arrangement, as the elements of the claim which the examiner asserts is anticipated. More specifically, the MPEP states that "[a] claim is anticipated *only if each and every element as set forth in the claim is found*, either expressly or inherently described, in a single prior art reference. . . . The identical invention must be shown in as complete detail as is contained in the . . . claim. . . . The elements must be arranged as required by the claim . . . .". *MPEP* § 2131 (emphasis added). Consequently, under the guidelines of the MPEP set forth above, if there is *any* substantial difference between the prior art cited by an examiner and an applicant's claim which the examiner asserts is rendered anticipated by the prior art, the prior art does NOT establish a *prima facie* case of anticipation and, barring other rejections, the applicant is entitled to a patent on such claim.

2. MPEP Standards for Determining Obviousness

"[T]he examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness."[3] *MPEP* § 2142. The MPEP indicates that in order for an examiner to establish a *prima facie* case that an invention, as defined by a claim at issue, is obvious, the examiner must (1) interpret the claim at issue; (2) define one or more prior art reference components relevant to the claim at issue; (3) ascertain the differences between the one or more prior art reference components and the elements of the claim at issue; and (4) adduce objective

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[2] With respect to interpreting a claim at issue, the MPEP directs that, during examination -- as opposed to subsequent to issue -- such claim be interpreted as broadly as the claim terms would reasonably allow, in light of the specification, when read by one skilled in the art with which the claimed invention is most closely connected. *MPEP* § 2111.

[3] An invention, as embodied in the claims, is rendered obvious if an examiner concludes that although the claimed invention is not identically disclosed or described in a reference, the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *MPEP* § 2141 (citing 35 U.S.C. § 103).

evidence which establishes, under a preponderance of the evidence standard, a teaching to modify the teachings of the prior art reference components such that the prior art reference components can be used to construct a device substantially equivalent to the claim at issue. This last step generally encompasses two sub-steps: (1) adducement of objective evidence teaching how to modify the prior art components to achieve the individual elements of the claim at issue; and (2) adducement of objective evidence teaching how to combine the modified individual components such that the claim at issue, as a whole, is achieved. *MPEP* § 2141; *MPEP* § 2143. Each of these forgoing elements is further defined within the MPEP. *Id.*

This requirement has been explained recently by the Supreme Court in *KSR v. Teleflex, 550 U.S. _____; 127 S. Ct. 1727 (2007)* which noted that such a rejection requires "some articulated reasoning ... to support the legal conclusion of obviousness." As stated by the Court, obviousness can be established where "there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, ***this analysis should be made explicit***." (*emphasis added*) See In re Kahn, 441 F. 3d 977, 988 (CA Fed. 2006) ('[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.')." *KSR v. Teleflex, 550 U.S. _____; 127 S. Ct. 1727 at 1741.*

As further described by the Court ***"[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.*** Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known." *KSR v. Teleflex, 550 U.S. _____; 127 S. Ct. 1727 at 1741.*

a) Interpreting a Claim at Issue

With respect to interpreting a claim at issue, the MPEP directs that, during examination -- as opposed to subsequent to issue -- such claim be interpreted as broadly as the claim terms would reasonably allow when read by one skilled in the art with which the claimed invention is

most closely connected. In practice, this is achieved by giving each of the terms in the claim the "plain meaning" of the terms as such would be understood by those having ordinary skill in the art, and if portions of the claim have no "plain meaning" within the art, or are ambiguous as used in a claim, then the examiner is to consult the specification for clarification. *MPEP* § 2111.

b) Definition of One or More Prior Art Reference Components Relevant to the Claim at Issue

Once the claim at issue has been properly interpreted, the next step is the definition of one or more prior art reference components (*e.g.*, electrical, mechanical, or other components set forth in a prior art reference) relevant to the properly interpreted claim at issue. With respect to the definition of one or more prior art reference components relevant to the claim at issue, the MPEP defines three proper sources of such prior art reference components, with the further requirement that each such source must have been extant at the time of invention to be considered relevant. These three sources are as follows: patents as defined by 35 U.S.C. § 102, printed publications as defined by 35 U.S.C. § 102, and information (*e.g.*, scientific principles) deemed to be "well known in the art"[4] as defined under 35 U.S.C. § 102. *MPEP* § 2141; *MPEP* § 2144.

c) Ascertainment of Differences between Prior Art Reference Components and Claim at Issue; Teaching to Modify and/or Combine Prior Art Reference Components to Remedy Those Differences in Order to Achieve Recitations of Claim at Issue

With one or more prior art components so defined and drawn from the proper prior art sources, the differences between the one or more prior art reference components and the elements of the claim at issue are to be ascertained. Thereafter, in order to establish a case of *prima facie*

[4] The fact that information deemed to be "well known in the art" can serve as a proper source of prior art reference components seems to open the door to subjectivity, but such is not the case. As a remedy to this potential problem, *MPEP* § 2144.03 states that if an examiner asserts that his position is derived from and/or is supported by a teaching or suggestion that is alleged to have been "well known in the art," and that if an applicant traverses such an assertion (that something was "well known within the art"), the examiner must cite a reference in support of his or her position. The same MPEP section also states that when a rejection is based on facts within the personal knowledge of an examiner, the data should be stated as specifically as possible, and the facts must be supported, when called for by the applicant, by an affidavit from the examiner. Such an affidavit is subject to contradiction or explanation by the affidavits of the applicant and other persons. *Id.* Thus, all sources of prior art reference components must be objectively verifiable.

obviousness, an examiner must set forth a rationale, supported by objective evidence[5] sufficient to demonstrate under a preponderance of the evidence standard, that in the prior art extant at the time of invention there was a teaching to modify and/or combine the one or more prior art reference components to construct a device practicably equivalent to the claim at issue.

The preferable evidence relied upon is an express teaching to modify/combine within the properly defined objectively verifiable sources of prior art. In the absence of such express teaching, an examiner may attempt to establish a rationale to support a finding of such teaching reasoned from, or based upon, express teachings taken from the defined proper sources of such evidence (*i.e.*, properly defined objectively verifiable sources of prior art). *MPEP* § 2144; *In re Dembiczak*, 50 U.S.P.Q.2d 1614 (Fed. Cir. 1999).

The MPEP recognizes the pitfalls associated with the tendency to subconsciously use impermissible "hindsight" when an examiner attempts to establish such a rationale. The MPEP has set forth at least two rules to ensure against the likelihood of such impermissible use of hindsight. The first rule is that:

> under 35 U.S.C. 103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information,[6] the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of an Applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search, and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon an Applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

[5] The proper sources of the objective evidence supporting the rationale are the defined proper sources of prior art reference components, discussed above, with the addition of factually similar legal precedent. *MPEP* § 2144.

[6] "Factual information" is information actually existing or occurring, as distinguished from mere supposition or opinion. *Black's Law Dictionary* 532 (5th ed. 1979).

MPEP § 2142 (emphasis added). Thus, if the only objective evidence of such teaching to modify and/or combine prior art reference components is an applicant's disclosure, no evidence of such teaching exists.[7]

The second rule is that if an examiner attempts to rely on some advantage or expected beneficial result that would have been produced by a modification and/or combination of the prior art reference components as evidence to support a rationale to establish such teachings to modify and/or combine prior art reference components, the MPEP requires that such advantage or expected beneficial result be objectively verifiable teachings present in the acceptable sources of prior art (or drawn from a convincing line of reasoning based on objectively verifiable established scientific principles or teachings). *MPEP* § 2144. Thus, as a guide to avoid the use of impermissible hindsight, these rules from the MPEP make clear that absent some objective evidence, sufficient to persuade under a preponderance of the evidence standard, no teaching of such modification and/or combination exists.[8]

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[7] An applicant may argue that an examiner's conclusion of obviousness is based on improper hindsight reasoning. However, "[a]ny judgment on obviousness is in a sense necessarily a reconstruction based on hindsight reasoning, but <u>so long as it</u> takes into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and <u>does not include knowledge gleaned only from applicant's disclosure</u>, such a reconstruction is proper." *MPEP* § 2145(X)(A) (emphasis added).

[8] *In Re Sang Su Lee* 277 F.3d 1338 (Fed. Cir. 2002) ("When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness.") *See, e.g., McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 U.S.P.Q.2d 1001, 1008 (Fed. Cir. 2001) ("the central question is whether there is reason to combine [the] references," a question of fact drawing on the *Graham* factors). *<u>"The factual inquiry whether to combine references must be thorough and searching." Id. It must be based on objective evidence of record. This precedent has been reinforced in myriad decisions, and cannot be dispensed with.</u>* *See, e.g., Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1124-25, 56 U.S.P.Q.2d 1456, 1459 (Fed. Cir. 2000) ("a showing of a suggestion, teaching, or motivation to combine the prior art references is an 'essential component of an obviousness holding'") (quoting *C.R. Bard, Inc., v. M3 Systems, Inc.*, 157 F.3d 1340, 1352, 48 U.S.P.Q.2d 1225, 1232 (Fed. Cir. 1998)); *In re Dembiczak*, 175 F.3d 994, 999, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999) ("Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references."); *In re Dance*, 160 F.3d 1339, 1343, 48 U.S.P.Q.2d 1635, 1637 (Fed. Cir. 1998) (there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant); *In re Fine*, 837 F.2d 1071, 1075, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988) ("'teachings of references can be combined <u>only</u> if there is some suggestion or incentive to do so.'") (emphasis in original) (quoting *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984)). The need for specificity pervades this authority. *See, e.g., In re Kotzab*, 217 F.3d 1365, 1371, 55 U.S.P.Q.2d 1313, 1317 (Fed. Cir. 2000) ("particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed"); *In re Rouffet*, 149 F.3d 1350, 1359, 47 U.S.P.Q.2d 1453, 1457-58 (Fed. Cir. 1998) ("even when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination. In other words, the Board must explain the reasons one of ordinary skill in the

B. Technical Material Cited by Examiner Does Not Show/Suggest Recitations of Independent Claim 1 and Dependent Claims 2-16, Independent Claim 17 and Dependent Claims 18-32, Independent Claim 33, Independent Claim 34 and Dependent Claims 35-37, Independent Claim 38 and Dependent Claim 39 as Presented Herein; Notice of Allowability of Same Respectfully Requested

1. Independent Claim 1

Claim 1 was rejected under 35 U.S.C. § 102(b) as being anticipated by Mulgund *et al.* (2002/0161751). Applicant respectfully traverses the rejection of claim 1.

Claim 1 recites:

> A method comprising:
> aggregating at least a part of one or more mote-addressed content indexes from a first set of motes.

The Office action at page 7, paragraph 12, recites:

> Claims 1-4, 7, 8, 10, 11, 13, 17-20, 23, 24, 26, 27, 29, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Mulgund et al. (2002/0161751).

More specifically, the Office action at page 7, paragraph 12, recites:

> As to claim 1, Mulgund shows: aggregating at least a part of one or more mote-addressed content indexes from a first set of motes (abstract, paragraph [0005] and [0025], Fig. 3, Fig. 4), wherein the terms "node" and "mote" are interpreted to have the same meaning of small embedded platform that has one or more sensors (paragraph [0026]) and therefore these terms are used here interchangeably.

Mulgund *et al.* at the abstract recites:

> Method of and system for aggregating into a relational database model the state of an ad hoc network comprised of uniquely addressable distributed sensor nodes in communication using networking protocols with one another through links and to a database server through access points. A relational database logical design resident on the database server is dynamically updated with respect to the sensor

art would have been motivated to select the references and to combine them to render the claimed invention obvious.")).

network's current and historical topological information through the use of a traversal and interrogating network modeling agent. The distributed sensors nodes may be mobile, and may communicate by wired or wireless means through networking protocols such as the Internet.

Mulgund *et al.* at paragraph 005 recites:

[0005] The tools needed to implement the vision of seamless, global access to remote information are available only in part, and not yet as an integrated package. The Applicants describe below the development of an information architecture, which is referred to in certain embodiments as Intelemetric™, and a method of using the architecture which make it possible to aggregate, store, process, and distributed, real-time distributed sensor data into the enterprise, and make resulting information readily available over the Internet.

Mulgund *et al.* at paragraph 0025 recites:

[0025] It is of no concern how this network topology came into being, how it is organized, what routing algorithms are used to pass messages from one node to the next, but rather, how to aggregate the information at each of the nodes into an off-network repository or network model database 12. The sensing nodes 2 may be mobile, and the interconnections may change over time. Furthermore, new nodes may join the network 4 at any time, and existing nodes may leave the network unexpectedly.

Mulgund *et al.* at paragraph 0026 recites:

[0026] FIG. 2 illustrates the nature of each of the sensing nodes 2, which comprise computational devices (possibly ranging in complexity from small embedded platforms to a fully-fledged PCs) that have one or more sensors 16 providing high-value information connected to it. The term sensor is used here in a general sense. A sensor 16 as contemplated herein could be as simple as an instrument that measures temperature, pressure, or any such other physical quantity. It could also be a device as complex as a video camera providing continuous full-motion imagery of some area of interest. In any case, the output of each of these sensors 16 is stored locally in a well-defined knowledge base 18, but the output can be accessed from outside the network 4 through some software application programming interface (API) and hardware implementation. Each of the sensing nodes 2 is additionally in communication with one or more other sensing nodes through connecting links 3.

Claim 1 recites, "aggregating at least a part of one or more mote-addressed content indexes from a first set of motes." In contrast, the recitations from Mulgund *et al.* cited in the

Office action in support of the rejection of claim 1 fail to recite, "aggregating at least a part of one or more mote-addressed content indexes from a first set of motes." Further, Mulgund *et al.* fail to recite "one or more mote-addressed content indexes," as recited in claim 1. Still further, based on an analysis of the Office action, the above quoted recitation from Mulgund *et al.* and claim 1, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate the above quoted material from Mulgund *et al.* with the recitation of claim 1, "aggregating at least a part of one or more mote-addressed content indexes from a first set of motes." Hence, the Office action fails to show how Mulgund *et al.* teach or suggest, "aggregating at least a part of one or more mote-addressed content indexes from a first set of motes." Thus, the Office action fails to state a *prima facie* case of anticipation with respect to claim 1. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 1.

2. Dependent Claims 2-16 Patentable for at Least Reasons of Dependency from Independent Claim 1

Claims 2-16 depend either directly or indirectly from Independent Claim 1. "A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers." *See* 35 U.S.C. § 112 paragraph 4. Consequently, Dependent Claims 2-16 are patentable for at least the reasons why Independent Claim 1 is patentable. Accordingly, Applicant respectfully requests that Examiner hold Dependent Claims 2-16 patentable for at least the foregoing reasons, and issue a Notice of Allowability on same.

3. Dependent Claim 2 Independently Patentable

Notwithstanding its dependency from Dependent Claim 1, Dependent Claim 2 is patentable on its own merits.

Claim 2 was rejected under 35 U.S.C. § 102(b) as being anticipated by Mulgund *et al.* (2002/0161751). Applicant respectfully traverses the rejection of claim 2.

Claim 1 recites:

A method comprising:

aggregating at least a part of one or more mote-addressed content indexes from a first set of motes.

Claim 2 recites:

The method of Claim 1, wherein said aggregating at least a part of one or more mote-addressed content indexes from a first set of motes further comprises:
receiving at least a part of one or more mote-addressed indexes of the first set of motes.

The Office action at page 7, paragraph 12, recites:

Claims 1-4, 7, 8, 10, 11, 13, 17-20, 23, 24, 26, 27, 29, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Mulgund et al. (2002/0161751).

More specifically, the Office action, at page 7, paragraph 12, recites:

As to claim 2, Mulgund shows: receiving at least a part of one or more mote-addressed indexes of the first set of motes [visiting a node and retrieving the information stored at the node] (paragraph [0062]).

Mulgund et al. at paragraph 0062 recites:

[0062] The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database.

Claim 2 recites, "receiving at least a part of one or more mote-addressed indexes of the first set of motes." In contrast, Mulgund et al., at paragraph 0062 recites:

[0062] The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database.

Also, in contrast, the recitations of Mulgund *et al.* at paragraph 0062 cited in the Office action in support of the rejection of claim 2 fail to recite, "receiving at least a part of one or more mote-addressed indexes of the first set of motes." Further, Mulgund *et al.* fail to recite "one or more mote-addressed indexes," as recited in claim 2. Still further, based on an analysis of the Office action, the above quoted recitation from Mulgund *et al.* and claim 2, Applicant

respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate the above quoted material from Mulgund *et al.* with the recitation of claim 2, "receiving at least a part of one or more mote-addressed indexes of the first set of motes." Hence, the Office action fails to show how Mulgund *et al.* teach or suggest "receiving at least a part of one or more mote-addressed indexes of the first set of motes." Thus, the Office action fails to state a *prima facie* case of anticipation with respect to claim 2. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 2.

4. Dependent Claim 3 Independently Patentable

Notwithstanding its dependency from Dependent Claim 1, Dependent Claim 3 is patentable on its own merits.

Claim 3 was rejected under 35 U.S.C. § 102(b) as being anticipated by Mulgund et al. (2002/0161751). Applicant respectfully traverses the rejection of claim 3.

Claim 1 recites:

> A method comprising:
> aggregating at least a part of one or more mote-addressed content indexes from a first set of motes.

Claim 3 recites:

> The method of Claim 1, wherein said aggregating at least a part of one or more mote-addressed content indexes from a first set of motes further comprises:
> creating one or more multi-mote content indexes of the first set of motes.

The Office action at page 7, paragraph 12, recites:

> Claims 1-4, 7, 8, 10, 11, 13, 17-20, 23, 24, 26, 27, 29, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Mulgund et al. (2002/0161751).

More specifically, the Office action, at page 7, paragraph 12, recites:

> As to claim 3, Mulgund shows: creating one or more multi-mote content indexes of the first set of motes (Fig. 4, paragraph [0042]).

Mulgund *et al.* at paragraph 0042 recites:

> [0042] In another embodiment, the database logical design 19 further comprises a Data Table List 30 that provides a mapping between individual nodes 2 and the names of the tables used to store those nodes' Sensor Data. Each of these tables is defined and created dynamically, based on the structure of the information at each node. FIG. 4 illustrates an embodiment of a network model logical design 19 for a three-node network configuration wherein each of the three nodes (A, B, C) provides a different amount of data. As such a network is traversed and the Nodes Table 20 is populated, an entry is made in the Data Table List Table 30 that identifies the name of the table associated with a given node. In the example illustrated, each node (A, B, C) has its own Node Data Table (27A-C). Each of Node Data Table is defined to accommodate the type of sensor data known to originate from that node. As discussed earlier, it is assumed that the software agent on the database server can interrogate the node to determine what type of information it provides, and then define the table structures accordingly.

Claim 3 recites, "creating one or more multi-mote content indexes of the first set of motes." In contrast, Mulgund *et al.* at paragraph 0062 recites, "Each of Node Data Table is defined to accommodate the type of sensor data known to originate from that node." Thus, Mulgund *et al.* fail to recite "creating one or more multi-mote content indexes of the first set of motes." Further, Mulgund et al. fail to recite, "multi-mote content indexes." Still further, based on an analysis of the Office action, the above quoted recitation from Mulgund *et al.* and claim 3, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate the above quoted material from Mulgund *et al.* with the recitation of claim 3, "creating one or more multi-mote content indexes of the first set of motes." Hence, the Office action fails to show how Mulgund *et al.* teaches or suggests "creating one or more multi-mote content indexes of the first set of motes." Thus, the Office action fails to state a *prima facie* case of anticipation with respect to claim 3. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 3.

5. Dependent Claim 4 Independently Patentable

Notwithstanding its dependency from Independent Claim 1, Dependent Claim 4 is patentable on its own merits.

Claim 4 was rejected under 35 U.S.C. § 102(b) as being anticipated by

Mulgund *et al.* (2002/0161751). Applicant respectfully traverses the rejection of claim 4.

Claim 1 recites:

> A method comprising:
> aggregating at least a part of one or more mote-addressed content indexes from a first set of motes.

Claim 3 recites:

> The method of Claim 1, wherein said aggregating at least a part of one or more mote-addressed content indexes from a first set of motes further comprises:
> creating one or more multi-mote content indexes of the first set of motes.

Claim 4 recites:

> The method of Claim 3, wherein said creating one or more multi-mote content indexes of the first set of motes further comprises:
> obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes.

The Office action at page 7, paragraph 12, recites:

> Claims 1-4, 7, 8, 10, 11, 13, 17-20, 23, 24, 26, 27, 29, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Mulgund et al. (2002/0161751).

More specifically, the Office action, at page 7, paragraph 12, recites:

> As to claim 4, Mulgund shows: obtaining a listing of motes appropriate to at least one of the one of more multimote content indexes (paragraphs [0035] and [0037]).

Mulgund *et al.* at paragraph 0035 recites:

[0035] FIG. 3 presents a candidate relational database logical design 19 for capturing information about the sensor network 4, comprising: a node address for each of the sensing nodes 2 in the network, as shown in a Node Table 20; each sensing node's connectivity to other sensing nodes, as shown in a Links Table 22; the information content each node presents, as shown in one or more Node Data Table(s) 24; and a history of the network's state, as reflected in a Node History Table 28 and a Link History Table 26.

Mulgund *et al.* at paragraph 0037 recites:

> [0037] The Nodes Table 20 maintains a list of all known sensor nodes 2 in the network 4. Each node is identified by a unique Node Address, which is a primary key for the Nodes Table 20. The Nodes Table also contains a Status field, which is used to indicate whether a node is known to be active. This field is used for marking nodes that have disappeared from the network (which could later reappear). At present, it is anticipated that this Status variable will take on one of just a small set of mutually exclusive values that indicate whether or not the associated node continues to be an active, reachable member of the network 4. Finally, the Nodes Table 20 contains a Timestamp field that indicates when the Status information was last updated. When a node disappears from the network for whatever reason, the corresponding entry in the Nodes Table 20 is not deleted; it is marked as unreachable. The reason for doing so is explained below.

Claim 4 recites, "obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes." Mulgund *et al.* cites to paragraphs 0035 and 0037 provided above in support of the rejection of claim 4. However, in contrast to claim 4, Mulgund *et al.* fail to recite "obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes," as recited in claim 4. Further, Mulgund *et al.* fail to recite, "multi-mote content indexes." Still further, based on an analysis of the Office action, the above quoted recitation from Mulgund *et al.* and claim 4, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate paragraphs 0035 and 0037 from Mulgund *et al.* with the recitation of claim 4, "obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes." Hence, the Office action fails to show how Mulgund *et al.* teaches or suggests "obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes." Thus, the Office action fails to state a *prima facie* case of anticipation with respect to claim 4. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 4.

6. Dependent Claim 5 Independently Patentable

Notwithstanding its dependency from Independent Claim 1, Dependent Claim 5 is patentable on its own merits.

Claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mulgund *et al.* (2002/0161751) in view of Chiloyan *et al.* (US Patent No. 7,165,109). Applicant respectfully traverses the rejection of claim 5.

Claim 1 recites:

> A method comprising:
> aggregating at least a part of one or more mote-addressed content indexes from a first set of motes.

Claim 3 recites:

> The method of Claim 1, wherein said aggregating at least a part of one or more mote-addressed content indexes from a first set of motes further comprises:
> creating one or more multi-mote content indexes of the first set of motes.

Claim 5 recites:

> The method of Claim 3, wherein said creating one or more multi-mote content indexes of the first set of motes further comprises:
> obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes from a multi-mote registry.

The Office action at page 9, paragraph 14, recites:

> Claims 5, 6, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. (2002/0161751) in view of Chiloyan et al. (US Patent No.: 7,165,109).

More specifically, the Office action, at pages 9 and 10, paragraph 14, recites:

> As to claim 5, Mulgund shows:
> obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes (paragraphs [0035] and [0037]) from a multi-mote registry [Nodes Table (20)].
> Alternatively, Chiloyan shows:
> obtaining a listing of devices from a registry [having an operational system accessing device registry to check if the particular peripheral device model is included in the current device registry] (col. 1 lines 50-65).
> It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by obtaining a list of devices from a registry in order to check if the particular device model and necessary information about the device is in the registry (col. 1 lines 58-63 in Chiloyan).

And Mulgund *et al.* at paragraphs 0035 and 0037 recites:

[0035] FIG. 3 presents a candidate relational database logical design 19 for capturing information about the sensor network 4, comprising: a node address for each of the sensing nodes 2 in the network, as shown in a Node Table 20; each sensing node's connectivity to other sensing nodes, as shown in a Links Table 22; the information content each node presents, as shown in one or more Node Data Table(s) 24; and a history of the network's state, as reflected in a Node History Table 28 and a Link History Table 26.

[0037] The Nodes Table 20 maintains a list of all known sensor nodes 2 in the network 4. Each node is identified by a unique Node Address, which is a primary key for the Nodes Table 20. The Nodes Table also contains a Status field, which is used to indicate whether a node is known to be active. This field is used for marking nodes that have disappeared from the network (which could later reappear). At present, it is anticipated that this Status variable will take on one of just a small set of mutually exclusive values that indicate whether or not the associated node continues to be an active, reachable member of the network 4. Finally, the Nodes Table 20 contains a Timestamp field that indicates when the Status information was last updated. When a node disappears from the network for whatever reason, the corresponding entry in the Nodes Table 20 is not deleted; it is marked as unreachable. The reason for doing so is explained below.

Chiloyan *et al.* at col. 1, lines 50-67 recites:

Specifically, the operating system checks to see if the particular peripheral device model is included in the current device registry, and if so, loads the corresponding device driver into memory. The newly connected USB peripheral device can then be used immediately.

However, when a new USB peripheral device is connected to a computer for the first time, the USB peripheral will not be listed in the device registry. For some peripheral devices, an information file (i.e., a *.INF file) and device driver are included with the operating system, which enables 60 the operating system to add necessary information about the
peripheral to the device registry and to load the device driver. However, in many cases, peripheral information and a device driver are not included with the operating system.
In that event, it is currently necessary to run a setup program 65 to obtain and install the required information, driver, and any related client application software for the peripheral device.

Claim 5 recites, "obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes from a multi-mote registry." The Office action cites to Chiloyan *et al.* to support this recitation in claim 5. Chiloyan *et al.* at col. 1, lines 50-67 recites:

> Specifically, the operating system checks to see if the particular peripheral device model is included in the current device registry, and if so, loads the corresponding device driver into memory. The newly connected USB peripheral device can then be used immediately.
>
> However, when a new USB peripheral device is connected to a computer for the first time, the USB peripheral will not be listed in the device registry. For some peripheral devices, an information file (i.e., a *.INF file) and device driver are included with the operating system, which enables 60 the operating system to add necessary information about the
> peripheral to the device registry and to load the device driver. However, in many cases, peripheral information and a device driver are not included with the operating system.
> In that event, it is currently necessary to run a setup program 65 to obtain and install the required information, driver, and any related client application software for the peripheral device.

However, this recitation is directed to USB devices and operating system registry rather than "multi-mote content indexes from a multi-mote registry," as recited in claim 5. Thus, the recitation fails to teach or suggest, "multi-mote content indexes from a multi-mote registry." Further, based on an analysis of the Office action, the above quoted recitations from Mulgund *et al.* and claim 5, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate recitations of Chiloyan *et al.* with the recitation of claim 5, "obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes from a multi-mote registry." Hence, the Office action fails to show how Mulgund *et al.* in view of Chiloyan *et al.* teach or suggest, "obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes from a multi-mote registry." Thus, the Office action fails to state a *prima facie* case of obviousness with respect to claim 5. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 5.

Further, the Office action at page 10, paragraph 14, recites:

> It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by obtaining a list of devices from a registry in order to check if the particular device model and necessary information about the device is in the registry (col. 1 lines 58-63 in Chiloyan).

Applicant respectfully submits that the Office action points to no teaching, suggestion, or motivation in the cited material to combine the teachings of Mulgund *et al.* and Chiloyan *et al.* as required under *In re* Sang Su Lee:

> It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher." W.L. Gore v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983).

Thus, assuming *arguendo* that the citations of the material set forth in the Office action teach or suggest the recitations of claim 5, the Office action still fails to state a *prima facie* case of obviousness with respect to claim 5. Therefore, applicant requests withdrawal of the rejection and reconsideration and allowance of claim 5.

As the Office action provides no support for the statement that the combination is obvious to one of ordinary skill in the art (i.e., the recitations of Chiloyan *et al.* are directed to USB devices rather than motes, and therefore do not support the conclusion that the combination is obvious), applicant concludes that the Examiner is taking "official notice." If the Office maintains the rejection, under 37 CFR 1.104(d)(3) the Examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding. Thus, if the Office maintains the rejection, in the next communication applicant respectfully requests that the Examiner provide an affidavit or declaration setting forth specific factual statements and explanation to support the conclusion that the combination is obvious.

7. Dependent Claim 6 Independently Patentable

Notwithstanding its dependency from Independent Claim 1, Dependent Claim 6 is patentable on its own merits.

Claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mulgund *et al.* (2002/0161751) in view of Chiloyan *et al.* (US Patent No. 7,165,109). Applicant respectfully traverses the rejection of claim 6.

Claim 1 recites:

A method comprising:
aggregating at least a part of one or more mote-addressed content indexes from a first set of motes.

Claim 3 recites:

The method of Claim 1, wherein said aggregating at least a part of one or more mote-addressed content indexes from a first set of motes further comprises:
creating one or more multi-mote content indexes of the first set of motes.

Claim 6 recites.

The method of Claim 3, wherein said creating one or more multi-mote content indexes of the first set of motes further comprises:
obtaining a pre-loaded listing of motes appropriate to at least one of the one or more multi-mote content indexes.

The Office action at page 9, paragraph 14, recites:

Claims 5, 6, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. (2002/0161751) in view of Chiloyan et al. (US Patent No.: 7,165,109).

More specifically, the Office action, at page 10, paragraph 14, recites:

As to claim 6, Mulgund shows:
obtaining a pre-loaded listing of motes [initial model construction listing] (paragraph 10046]) appropriate to at least one of the one or more multi-mote content indexes (paragraphs [0035] and [0037]).
Alternatively, Chiloyan shows:

obtaining a pre-loaded listing of devices [devices already included in the current device registry] (col. 1 lines 50-55).
It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by obtaining a pre-loaded list of devices in order to check if the particular device model and necessary information about the device is already included in the registry (col. 1 lines 58-63 in Chiloyan).

Mulgund *et al.* at paragraphs 0035 and 0037 recites:

[0035] FIG. 3 presents a candidate relational database logical design 19 for capturing information about the sensor network 4, comprising: a node address for each of the sensing nodes 2 in the network, as shown in a Node Table 20; each sensing node's connectivity to other sensing nodes, as shown in a Links Table 22; the information content each node presents, as shown in one or more Node Data Table(s) 24; and a history of the network's state, as reflected in a Node History Table 28 and a Link History Table 26.

[0037] The Nodes Table 20 maintains a list of all known sensor nodes 2 in the network 4. Each node is identified by a unique Node Address, which is a primary key for the Nodes Table 20. The Nodes Table also contains a Status field, which is used to indicate whether a node is known to be active. This field is used for marking nodes that have disappeared from the network (which could later reappear). At present, it is anticipated that this Status variable will take on one of just a small set of mutually exclusive values that indicate whether or not the associated node continues to be an active, reachable member of the network 4. Finally, the Nodes Table 20 contains a Timestamp field that indicates when the Status information was last updated. When a node disappears from the network for whatever reason, the corresponding entry in the Nodes Table 20 is not deleted; it is marked as unreachable. The reason for doing so is explained below.

Chiloyan *et al.* at col. 1, lines 50-67 recites:

Specifically, the operating system checks to see if the particular peripheral device model is included in the current device registry, and if so, loads the corresponding device driver into memory. The newly connected USB peripheral device can then be used immediately.

However, when a new USB peripheral device is connected to a computer for the first time, the USB peripheral will not be listed in the device registry. For some peripheral devices, an information file (i.e., a *.INF file) and device driver are included with the operating system, which enables 60 the operating system to add necessary information about the
peripheral to the device registry and to load the device driver. However, in many cases, peripheral information and a device driver are not included with the operating system.

> In that event, it is currently necessary to run a setup program 65 to obtain and install the required information, driver, and any related client application software for the peripheral device.

Claim 6 recites, "obtaining a pre-loaded listing of motes appropriate to at least one of the one or more multi-mote content indexes." The Office action cites to Chiloyan *et al.* to support this recitation in claim 6. Chiloyan *et al.* at col. 1, lines 50-67 recites:

> Specifically, the operating system checks to see if the particular peripheral device model is included in the current device registry, and if so, loads the corresponding device driver into memory. The newly connected USB peripheral device can then be used immediately.
>
> However, when a new USB peripheral device is connected to a computer for the first time, the USB peripheral will not be listed in the device registry. For some peripheral devices, an information file (i.e., a *.INF file) and device driver are included with the operating system, which enables 60 the operating system to add necessary information about the
> peripheral to the device registry and to load the device driver. However, in many cases, peripheral information and a device driver are not included with the operating system.
> In that event, it is currently necessary to run a setup program 65 to obtain and install the required information, driver, and any related client application software for the peripheral device.

However, this recitation is directed to USB devices and operating system registry rather than "multi-mote content indexes," as recited in claim 6. Thus, the recitation fails to teach or suggest, "multi-mote content indexes." Further, based on an analysis of the Office action, the above quoted recitations from Mulgund *et al.* and claim 6, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate recitations of Chiloyan *et al.* with the recitation of claim 6, "obtaining a pre-loaded listing of motes appropriate to at least one of the one or more multi-mote content indexes." Hence, the Office action fails to show how Mulgund *et al.* in view of Chiloyan *et al.* teach or suggest, "obtaining a pre-loaded listing of motes appropriate to at least one of the one or more multi-mote content indexes." Thus, the Office action fails to state a *prima facie* case of obviousness with respect to claim 6. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 6.

Further, the Office action at page 10, paragraph 14, recites:

> It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by obtaining a pre-loaded list of devices in order to check if the particular device model and necessary information about the device is already included in the registry (col. 1 lines 58-63 in Chiloyan).

Applicant respectfully submits that the Office action points to no teaching, suggestion, or motivation in the cited material to combine the teachings of Mulgund *et al.* and Chiloyan *et al.* as required under *In re* Sang Su Lee:

> It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher." W.L. Gore v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983).

Thus, assuming *arguendo* that the citations of the material set forth in the Office action teach or suggest the recitations of claim 6, the Office action still fails to state a *prima facie* case of obviousness with respect to claim 6. Therefore, applicant requests withdrawal of the rejection and reconsideration and allowance of claim 6.

As the Office action provides no support for the statement that the combination is obvious to one of ordinary skill in the art (i.e., the recitations of Chiloyan *et al.* are directed to USB devices rather than motes, and therefore do not support the conclusion that the combination is obvious), applicant concludes that the Examiner is taking "official notice." If the Office maintains the rejection, under 37 CFR 1.104(d)(3) the Examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding. Thus, if the Office maintains the rejection, in the next communication applicant respectfully requests that the Examiner provide an affidavit or declaration setting forth specific factual statements and explanation to support the conclusion that the combination is obvious.

8. Dependent Claim 7 Independently Patentable

Notwithstanding its dependency from Independent Claim 1, Dependent Claim 7 is patentable on its own merits.

Claim 7 was rejected under 35 U.S.C. § 102(b) as being anticipated by Mulgund et al. (2002/0161751). Applicant respectfully traverses the rejection of claim 7.

Claim 1 recites:

> A method comprising:
> aggregating at least a part of one or more mote-addressed content indexes from a first set of motes.

Claim 3 recites:

> The method of Claim 1, wherein said aggregating at least a part of one or more mote-addressed content indexes from a first set of motes further comprises:
> creating one or more multi-mote content indexes of the first set of motes.

Claim 7 recites.

> The method of Claim 3, wherein said creating one or more multi-mote content indexes of the first set of motes further comprises:
> obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes from one or motes to be included in the listing.

The Office action at pages 7, paragraph 12, recites:

> Claims 1-4, 7, 8, 10, 11, 13, 17-20, 23, 24, 26, 27, 29, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Mulgund et al. (2002/0161751).

More specifically, the Office action, at page 7, paragraph 12, recites:

As to claim 7, Mulgund shows: obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes (paragraphs [0035] and [0037]) from one or more motes to be included in the listing (paragraph [0061] and [0062]) wherein the second column in table 1 (CAL) shows the current links from the Node being visited.

Mulgund *et al.* at paragraph 0035 recites:

[0035] FIG. 3 presents a candidate relational database logical design 19 for capturing information about the sensor network 4, comprising: a node address for each of the sensing nodes 2 in the network, as shown in a Node Table 20; each sensing node's connectivity to other sensing nodes, as shown in a Links Table 22; the information content each node presents, as shown in one or more Node Data

Table(s) 24; and a history of the network's state, as reflected in a Node History Table 28 and a Link History Table 26.

Mulgund *et al.* at paragraph 0037 recites:

[0037] The Nodes Table 20 maintains a list of all known sensor nodes 2 in the network 4. Each node is identified by a unique Node Address, which is a primary key for the Nodes Table 20. The Nodes Table also contains a Status field, which is used to indicate whether a node is known to be active. This field is used for marking nodes that have disappeared from the network (which could later reappear). At present, it is anticipated that this Status variable will take on one of just a small set of mutually exclusive values that indicate whether or not the associated node continues to be an active, reachable member of the network 4. Finally, the Nodes Table 20 contains a Timestamp field that indicates when the Status information was last updated. When a node disappears from the network for whatever reason, the corresponding entry in the Nodes Table 20 is not deleted; it is marked as unreachable. The reason for doing so is explained below.

Mulgund et al. at paragraph 0061 recites:

[0061] Table 1 provides details of the process by which the network 4 is traversed. The first column of Table 1 shows the node stack maintained by the NMA 14. The second column (CAL) shows the current links from the Node at the top of the stack. The third column (HAL) shows the links that were obtained from the node at the top of the node stack in a previous sweep of the entire network. The fourth column shows the actions performed inside the for-loop of the pseudo-code.

Mulgund et al. at paragraph 0062 recites:

[0062] The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database.

Claim 7 recites, "obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes." Mulgund *et al.* cites to paragraphs 0035, 0037, 0061, and 0062 provided above in support of the rejection of claim 7. However, in contrast to claim 7, Mulgund *et al.* fail to recite "obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes," as recited in claim 7. Further, Mulgund *et al.* fail to recite, "multi-mote content indexes." Still further, based on an analysis of the Office action, the above quoted recitation from Mulgund *et al.* and claim 7, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should

equate recitations included in paragraphs 0035, 0037, 0061, or 0062 of Mulgund *et al.* with the recitation of claim 7, "obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes." Hence, the Office action fails to show how Mulgund *et al.* teach or suggest, "obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes." Thus, the Office action fails to state a *prima facie* case of anticipation with respect to claim 7. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 7.

9. Dependent Claim 8 Independently Patentable

Notwithstanding its dependency from Independent Claim 1, Dependent Claim 8 is patentable on its own merits.

Claim 8 was rejected under 35 U.S.C. § 102(b) as being anticipated by Mulgund et al. (2002/0161751). Applicant respectfully traverses the rejection of claim 8.

Claim 1 recites:

> A method comprising:
> aggregating at least a part of one or more mote-addressed content indexes from a first set of motes.

Claim 3 recites:

> The method of Claim 1, wherein said aggregating at least a part of one or more mote-addressed content indexes from a first set of motes further comprises: creating one or more multi-mote content indexes of the first set of motes.

Claim 8 recites:

> The method of Claim 3, wherein said creating one or more multi-mote content indexes of the first set of motes further comprises:
> receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a reporting entity at a mote of the first set of motes.

The Office action at page 7, paragraph 12, recites:

> Claims 1-4, 7, 8, 10, 11, 13, 17-20, 23, 24, 26, 27, 29, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Mulgund et al. (2002/0161751).

More specifically, the Office action, at page 7, paragraph 12, recites:

> As to claim 8, Mulgund shows: receiving at least a part of at least one of a mote-addressed sensing index from a reporting entity at a mote of the first set of motes [visiting a node and retrieving the information stored at the node] (paragraph 0062]) wherein information is retrieved from a knowledge base (18) at a node (paragraph [0026 lines 11-17) and used to form a relational database (Fig. 3 and Fig. 4).

Mulgund *et al.* at paragraph 0062 recites:

> [0062] The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database.

Mulgund et al. at paragraph 0026, lines 8-17 recites:

> [0026] FIG. 2 illustrates the nature of each of the sensing nodes 2, which comprise computational devices (possibly ranging in complexity from small embedded platforms to a fully-fledged PCs) that have one or more sensors 16 providing high-value information connected to it. The term sensor is used here in a general sense. A sensor 16 as contemplated herein could be as simple as an instrument that measures temperature, pressure, or any such other physical quantity. It could also be a device as complex as a video camera providing continuous full-motion imagery of some area of interest.

Claim 8 recites, "receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a reporting entity at a mote of the first set of motes." Mulgund *et al.* cites to paragraphs 0062 and 0026 provided above in support of the rejection of claim 8. However, in contrast to claim 8, Mulgund *et al.* fail to recite "receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a reporting entity at a mote of the first set of motes,"
as recited in claim 8. Further, Mulgund *et al.* fail to recite, "a reporting entity," as recited in claim 8. Still further, based on an analysis of the Office action, the above quoted recitation from Mulgund *et al.* and claim 8, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate recitations included in paragraphs 0026 and 0026 of Mulgund *et al.* with the recitation of claim 8, "receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed

control index from a reporting entity at a mote of the first set of motes." Hence, the Office action fails to show how Mulgund *et al.* teach or suggest, " receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a reporting entity at a mote of the first set of motes." Thus, the Office action fails to state a *prima facie* case of anticipation with respect to claim 8. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 8.

10. Dependent Claim 9 Independently Patentable

Notwithstanding its dependency from Independent Claim 1, Dependent Claim 9 is patentable on its own merits.

Claim 9 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mulgund *et al.* (2002/0161751) in view of Kung *et al.* (2005/0021724). Applicant respectfully traverses the rejection of claim 9.

Claim 1 recites:

> A method comprising:
> aggregating at least a part of one or more mote-addressed content indexes from a first set of motes.

Claim 3 recites:

> The method of Claim 1, wherein said aggregating at least a part of one or more mote-addressed content indexes from a first set of motes further comprises:
> creating one or more multi-mote content indexes of the first set of motes.

Claim 9 recites:

> The method of Claim 3, wherein said creating one or more multi-mote content indexes of the first set of motes further comprises:
> receiving at least a part of at least one of a mote-addressed routing/spatial index from a reporting entity at a mote of the first set of motes.

The Office action at page 11, paragraph 15, recites:

> Claims 9, 12, 14, 15, 25, 28, 30, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. (2002/0161751) in view of Kung et al. (2005/0021724).

More specifically, the Office action at pages 11 and 12, paragraph 15, recites:

As to claim 9, Mulgund shows:
receiving at least a part of at least one of a mote-addressed index from a reporting entity at a mote of the first set of motes [visiting a node and retrieving the . information stored at the node] (paragraph 0062]) wherein information is retrieved from a knowledge base (18) at each node (paragraph [0026 lines 11-17) and used to form a relational database (Fig. 3 and Fig. 4).
Mulgund does not show that received index is a mote-addressed routing/spatial index.
Kung shows determining one or more types of spatial information related to devices of or proximate to the mote (paragraph [0036]).
It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having a mote-addressed routing/spatial index that is stored at the reporting entity at a mote [knowledge base (18)] being received [obtained] in order to determine a global position of a mote that would identify a location of the mote in space (paragraph [0010] in Kung) and relative to other nodes
since each of the sensing nodes in communication with one or more other sensing nodes (paragraph [0026] lines 11-17 in Mulgund).

Mulgund et al. at paragraph 0062 recites:

[0062] The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database.

Mulgund *et al.* at paragraph 0026, lines 11-17 recites:

[0026] FIG. 2 illustrates the nature of each of the sensing nodes 2, which comprise computational devices (possibly ranging in complexity from small embedded platforms to a fully-fledged PCs) that have one or more sensors 16 providing high-value information connected to it. The term sensor is used here in a general sense. A sensor 16 as contemplated herein could be as simple as an instrument that measures temperature, pressure, or any such other physical quantity. It could also be a device as complex as a video camera providing continuous full-motion imagery of some area of interest. In any case, the output of each of these sensors 16 is stored locally in a well-defined knowledge base 18, but the output can be accessed from outside the network 4 through some software application programming interface (API) and hardware implementation. Each of the sensing nodes 2 is additionally in communication with one or more other sensing nodes through connecting links 3.

Kung *et al.* at paragraph 0036 recites:

> [0036] The Internet and most data networks use network addresses, such as IP Address 208.154.23.54. These addresses, however, have no correlation to the node's spatial address, that is, the latitude, longitude, altitude or x,y,z coordinates. For certain embodiments, one may not need to know the spatial address of the responding node. However, if spatial information is needed, the spatial address of any node may be determined by any one of a number of known methods. For example, in some embodiments, one or more of the nodes may have a means for determining the node's spatial address, such as, for example, a Global Positioning System (GPS) device. If any particular node does not have a GPS device, it may be able to determine its own position by communicating with other nodes that do.

Kung *et al.* at paragraph 0010 recites:

> [0010] Since sensor data is associated with the physical location of the sensor, determining the spatial coordinates of a sensor is important. Indeed, many efforts to date have focused on perfecting localization techniques. Constraints on cost, size, or power as well as the line-of-sight constraint may preclude the use of global positioning techniques, such as GPS. In this case, self-configuring sensor networks would require to use other localization methods, which could, for example, involve the use of sensors in the network itself.

Claim 9 recites, "receiving at least a part of at least one of a mote-addressed routing/spatial index from a reporting entity at a mote of the first set of motes." The Office action cites to Mulgund *et al.* to support the rejection of claim 9. Mulgund *et al.* at paragraph 0062 recites:

> [0062] The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database.

However, Mulgund et al. at paragraph 0062 fails to recite, "receiving," "index," and "a reporting entity at a mote," which are recitations included in claim 9. Thus, the recitation fails to teach or suggest, "receiving at least a part of at least one of a mote-addressed routing/spatial index from a reporting entity at a mote of the first set of motes." Further, based on an analysis of the Office action, the above quoted recitations from Mulgund *et al.* and claim 9, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate recitations of Mulgund *et al.* with the recitation of claim 9, "receiving at least a part of at least one of a mote-addressed routing/spatial index from a reporting entity at a mote of the first set of motes." Hence, the Office action fails to show how

Mulgund *et al.* in view of Chiloyan *et al.* teach or suggest, "receiving at least a part of at least one of a mote-addressed routing/spatial index from a reporting entity at a mote of the first set of motes." Thus, the Office action fails to state a *prima facie* case of obviousness with respect to claim 9. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 9.

11. Dependent Claim 10 Independently Patentable

Notwithstanding its dependency from Independent Claim 1, Dependent Claim 10 is patentable on its own merits.

Claim 10 was rejected under 35 U.S.C. § 102(b) as being anticipated by Mulgund *et al.* (2002/0161751). Applicant respectfully traverses the rejection of claim 10.

Claim 1 recites:

> A method comprising:
> aggregating at least a part of one or more mote-addressed content indexes from a first set of motes.

Claim 10 recites:

> The method of Claim 1, wherein said aggregating at least a part of one or more mote-addressed content indexes from a first set of motes further comprises:
> receiving at least a part of one or more multi-mote content indexes of the first set of motes.

The Office action at page 7, paragraph 12, recites:

> Claims 1-4, 7, 8, 10, 11, 13, 17-20, 23, 24, 26, 27, 29, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Mulgund et al. (2002/0161751).

More specifically, the Office action, at page 8, paragraph 12, recites:

> As to claim 10, Mulgund shows: receiving at least a part of one or more multi-mote content indexes of the first set of motes [visiting a node and retrieving the information stored at the node) (paragraphs [0007], [0026] lines 11-17, and [0062]).

Mulgund *et al.* at paragraph 0007 recites:

[0007] In another aspect, the present invention is a method of database modeling that makes it possible to create, store, and update a virtual model of a network of sensors within a relational database structure. The network modeling agent dynamically updates various sensor node data and link data that collectively define an instantaneous "state" of the sensor network into the database logical design. The network modeling agent thereby facilitates access, visualization, and the use of a stream of information generated by the network of distributed sensors. The sensor nodes to be interrogated by the network modeling agent are assumed to be uniquely addressable and in communication, using networking protocols, with one another through links and with a database server through one or more access points. A method according to the present invention comprises the steps of discovering and maintaining the distributed sensor network topology by applying at every access point a uqasi-recursive [sic] algorithm, which causes the network modeling agent to visit a first sensor node and mark the first node visited, push the marked first node onto a stack, and while the stack is non-empty, query the node at the top of the stack for a list of current links to the node at the top, compare the list of current links to a list of historical links to the node at the top of the stack and update the historical link and historical node information, and if there are no unmarked nodes reachable from a current link then pop the stack, otherwise visit the next reachable unmarked node, mark the next node and push it onto the stack. The network modeling agent builds the database model by updating relational database logical design tables at each step of the discovering step. The agent maintains the database model by periodically reapplying the interrogating algorithm, thereby updating the database model to account for sensor node and link additions and deletions. The periodicity of updates is preferably such that a near real-time topology of the sensor network is maintained.

Mulgund *et al.* at paragraph 0026, lines 8-17 recites:

[0026] FIG. 2 illustrates the nature of each of the sensing nodes 2, which comprise computational devices (possibly ranging in complexity from small embedded platforms to a fully-fledged PCs) that have one or more sensors 16 providing high-value information connected to it. The term sensor is used here in a general sense. A sensor 16 as contemplated herein could be as simple as an instrument that measures temperature, pressure, or any such other physical quantity. It could also be a device as complex as a video camera providing continuous full-motion imagery of some area of interest.

Mulgund *et al.* at paragraph 0062 recites:

> [0062] The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database.

Claim 10 recites, "receiving at least a part of one or more multi-mote content indexes of the first set of motes." Mulgund *et al.* cites to paragraphs 0007, 0026, 0062 provided above in support of the rejection of claim 10. However, in contrast to claim 10, Mulgund *et al.* fail to recite "receiving at least a part of one or more multi-mote content indexes of the first set of motes," as recited in claim 10. Further, Mulgund *et al.* fail to recite, "multi-mote content indexes," as recited in claim 10. Further, in contrast to claim 10 Mulgund et al. at paragraph 0007 recites, "In another aspect, the present invention is a method of database modeling that makes it possible to create, store, and update a virtual model of a network of sensors within a relational database structure." Still further, based on an analysis of the Office action, the above quoted recitation from Mulgund *et al.* and claim 10, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate recitations included in paragraphs 0007, 0026, and 0062 of Mulgund *et al.* with the recitation of claim 10, "receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a reporting entity at a mote of the first set of motes." Hence, the Office action fails to show how Mulgund *et al.* teach or suggest, "receiving at least a part of one or more multi-mote content indexes of the first set of motes." Thus, the Office action fails to state a *prima facie* case of anticipation with respect to claim 10. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 10.

12. Dependent Claim 11 Independently Patentable

Notwithstanding its dependency from Independent Claim 1, Dependent Claim 11 is patentable on its own merits.

Claim 11 was rejected under 35 U.S.C. § 102(b) as being anticipated by Mulgund et al. (2002/0161751). Applicant respectfully traverses the rejection of claim 11.

Claim 1 recites:

> A method comprising:
> aggregating at least a part of one or more mote-addressed content indexes from a first set of motes.

Claim 10 recites:

The method of Claim 1, wherein said aggregating at least a part of one or more mote-addressed content indexes from a first set of motes further comprises:
receiving at least a part of one or more multi-mote content indexes of the first set of motes.

Claim 11 recites:

The method of Claim 10, wherein said receiving at least a part of one or more multi-mote content indexes of the first set of motes further comprises:
receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a multi-mote reporting entity at a mote of the first set of motes.

The Office action at page 7, paragraph 12, recites:

Claims 1-4, 7, 8, 10, 11, 13, 17-20, 23, 24, 26, 27, 29, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Mulgund et al. (2002/0161751).

More specifically, the Office action at page 8, paragraph 11, recites:

As to claim 11, Mulgund shows:
receiving at least a part of at least one of a mote-addressed sensing index from a multi-mote reporting entity at a mote of the first set of motes [visiting a node and retrieving the information stored at the node] (paragraph 0062]) wherein information is retrieved from a knowledge base (18) at a node (paragraph [0026 lines 11-17) and used to form a relational database (Fig. 3 and Fig. 4).

Mulgund et al. at paragraph 0062 recites:

[0062] The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database.

Mulgund et al. at paragraph 0026, lines 8-17 recites:

[0026] FIG. 2 illustrates the nature of each of the sensing nodes 2, which comprise computational devices (possibly ranging in complexity from small embedded platforms to a fully-fledged PCs) that have one or more sensors 16 providing

high-value information connected to it. The term sensor is used here in a general sense. A sensor 16 as contemplated herein could be as simple as an instrument that measures temperature, pressure, or any such other physical quantity. It could also be a device as complex as a video camera providing continuous full-motion imagery of some area of interest.

Claim 11 recites, "receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a multi-mote reporting entity at a mote of the first set of motes." Mulgund *et al.* cites to paragraphs 0062 and 0026 provided above in support of the rejection of claim 11. However, in contrast to claim 11, Mulgund *et al.* fail to recite "receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a multi-mote reporting entity at a mote of the first set of motes." Further, Mulgund *et al.* fail to recite, "a multi-mote reporting entity," as recited in claim 11. Further, in contrast to claim 11 Mulgund *et al.* at paragraph 0007 recite, "The process of visiting a node involves retrieving the information stored at the node, and updating the local database." Still further, based on an analysis of the Office action, the above quoted recitation from Mulgund *et al.* and claim 11, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate recitations included in paragraphs 0062 or 0026 of Mulgund *et al.* with the recitation of claim 11, "receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a multi-mote reporting entity at a mote of the first set of motes." Hence, the Office action fails to show how Mulgund *et al.* teach or suggest, "receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a multi-mote reporting entity at a mote of the first set of motes." Thus, the Office action fails to state a *prima facie* case of anticipation with respect to claim 11. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 11.

13. Dependent Claim 12 Independently Patentable

Notwithstanding its dependency from Independent Claim 1, Dependent Claim 12 is patentable on its own merits.

Claim 12 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mulgund *et al.* (2002/0161751) in view of Chiloyan *et al.* (US Patent No. 7,165,109). Applicant respectfully traverses the rejection of claim 12.

Claim 1 recites:

> A method comprising:
> aggregating at least a part of one or more mote-addressed content indexes from a first set of motes.

Claim 10 recites:

> The method of Claim 1, wherein said aggregating at least a part of one or more mote-addressed content indexes from a first set of motes further comprises:
> receiving at least a part of one or more multi-mote content indexes of the first set of motes.

Claim 12 recites:

> The method of Claim 10, wherein said receiving at least a part of one or more multi-mote content indexes of the first set of motes further comprises:
> receiving at least a part of a mote-addressed routing/spatial index from a multi-mote reporting entity at a mote of the first set of motes.

The Office action at page 11, paragraph 15, recites:

> Claims 9, 12, 14, 15, 25, 28, 30, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. (2002/0161751) in view of Kung et al. (2005/0021724).

More specifically, the Office action, at page 12, paragraph 15, recites:

> As to claim 12, Mulgund shows:
> receiving at least a part of at least one of a mote-addressed index from a multi-mote reporting entity at a mote of the first set of motes [visiting a node and retrieving the information stored at the node] (paragraph 0062]) wherein information is retrieved from a knowledge base (18) at each node (paragraph [0026 lines 11-17) and used to form a relational database (Fig. 3 and Fig. 4).
> Mulgund does not show that received index is a mote-addressed routing/spatial index.
> Kung shows determining one or more types of spatial information related to devices of or proximate to the mote (paragraph [0036]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having a mote-addressed routing/spatial index that is stored at the reporting entity at a mote [knowledge base (18)] being received [obtained] in order to determine a global position of a mote that would identify a location of the mote in space (paragraph [0010] in Kung) and relative to other nodes since each of the sensing nodes in communication with one or more other sensing nodes (paragraph [0026] lines 11-17 in Mulgund).

Mulgund *et al.* at paragraph 0062 recites:

[0062] The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database.

Mulgund *et al.* at paragraph 0026, lines 11-17, recites:

[0026] FIG. 2 illustrates the nature of each of the sensing nodes 2, which comprise computational devices (possibly ranging in complexity from small embedded platforms to a fully-fledged PCs) that have one or more sensors 16 providing high-value information connected to it. The term sensor is used here in a general sense. A sensor 16 as contemplated herein could be as simple as an instrument that measures temperature, pressure, or any such other physical quantity. It could also be a device as complex as a video camera providing continuous full-motion imagery of some area of interest. In any case, the output of each of these sensors 16 is stored locally in a well-defined knowledge base 18, but the output can be accessed from outside the network 4 through some software application programming interface (API) and hardware implementation. Each of the sensing nodes 2 is additionally in communication with one or more other sensing nodes through connecting links 3.

Kung *et al.* at paragraph 0036 recites:

[0036] The Internet and most data networks use network addresses, such as IP Address 208.154.23.54. These addresses, however, have no correlation to the node's spatial address, that is, the latitude, longitude, altitude or x,y,z coordinates. For certain embodiments, one may not need to know the spatial address of the responding node. However, if spatial information is needed, the spatial address of any node may be determined by any one of a number of known methods. For example, in some embodiments, one or more of the nodes may have a means for determining the node's spatial address, such as, for example, a Global Positioning System (GPS) device. If any particular node does not have a GPS device, it may be able to determine its own position by communicating with other nodes that do.

Kung *et al.* at paragraph 0010 recites:

> [0010] Since sensor data is associated with the physical location of the sensor, determining the spatial coordinates of a sensor is important. Indeed, many efforts to date have focused on perfecting localization techniques. Constraints on cost, size, or power as well as the line-of-sight constraint may preclude the use of global positioning techniques, such as GPS. In this case, self-configuring sensor networks would require to use other localization methods, which could, for example, involve the use of sensors in the network itself.

Claim 12 recites, "receiving at least a part of a mote-addressed routing/spatial index from a multi-mote reporting entity at a mote of the first set of motes." The Office action cites to Mulgund *et al.* to support the rejection of claim 12. Mulgund *et al.* at paragraph 0062 recites:

> [0062] The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database.

However, Mulgund et al. at paragraph 0062 fails to recite, "multi-mote reporting entity," as recited in claim 12. Thus, the recitation fails to teach or suggest, "receiving at least a part of a mote-addressed routing/spatial index from a multi-mote reporting entity at a mote of the first set of motes." Further, based on an analysis of the Office action, the above quoted recitations from Mulgund *et al.* and claim 12, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate recitations of Mulgund *et al.* with the recitation of claim 12, "receiving at least a part of a mote-addressed routing/spatial index from a multi-mote reporting entity at a mote of the first set of motes." Hence, the Office action fails to show how Mulgund *et al.* in view of Chiloyan *et al.* teach or suggest, "receiving at least a part of at least one of a mote-addressed routing/spatial index from a reporting entity at a mote of the first set of motes." Thus, the Office action fails to state a *prima facie* case of obviousness with respect to claim 12. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 12.

14. Dependent Claim 13 Independently Patentable

Notwithstanding its dependency from Independent Claim 1, Dependent Claim 13 is patentable on its own merits.

Claim 13 was rejected under 35 U.S.C. § 102(b) as being anticipated by

Mulgund *et al.* (2002/0161751). Applicant respectfully traverses the rejection of claim 13.

Claim 1 recites:

> A method comprising:
> aggregating at least a part of one or more mote-addressed content indexes from a first set of motes.

Claim 13 recites:

> The method of Claim 1, wherein said aggregating at least a part of one or more mote-addressed content indexes from a first set of motes further comprises:
> creating an aggregate of at least a part of one or more multi-mote content indexes of the first set of motes.

The Office action at page 7, paragraph 12, recites:

> Claims 1-4, 7, 8, 10, 11, 13, 17-20, 23, 24, 26, 27, 29, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Mulgund et al. (2002/0161751).

More specifically, the Office action, at page 8, paragraph 12, recites:

> As to claim 13, Mulgund shows:
> creating an aggregate of at least a part of one or more multi-mote content indexes of the first set of motes (abstract, paragraph [0005] and [0025], Fig. 3, Fig. 4).

Mulgund et al. at the abstract recites:

> Method of and system for aggregating into a relational database model the state of an ad hoc network comprised of uniquely addressable distributed sensor nodes in communication using networking protocols with one another through links and to a database server through access points. A relational database logical design resident on the database server is dynamically updated with respect to the sensor network's current and historical topological information through the use of a traversal and interrogating network modeling agent. The distributed sensors nodes may be mobile, and may communicate by wired or wireless means through networking protocols such as the Internet.

Mulgund et al. at paragraph 005 recites:

> [0005] The tools needed to implement the vision of seamless, global access to remote information are available only in part, and not yet as an integrated package. The Applicants describe below the development of an information architecture, which is referred to in certain embodiments as Intelemetric^{TM}, and a method of using the architecture which make it possible to aggregate, store, process, and distributed, real-time distributed sensor data into the enterprise, and make resulting information readily available over the Internet.

Mulgund et al. at paragraph 0025 recites:

> [0025] It is of no concern how this network topology came into being, how it is organized, what routing algorithms are used to pass messages from one node to the next, but rather, how to aggregate the information at each of the nodes into an off-network repository or network model database 12. The sensing nodes 2 may be mobile, and the interconnections may change over time. Furthermore, new nodes may join the network 4 at any time, and existing nodes may leave the network unexpectedly.

Claim 13 recites, "creating an aggregate of at least a part of one or more multi-mote content indexes of the first set of motes." Mulgund *et al.* cites to the abstract and paragraphs 0062 and 0026 provided above in support of the rejection of claim 13. However, in contrast to claim 13, Mulgund *et al.* fail to recite "creating an aggregate of at least a part of one or more multi-mote content indexes of the first set of motes," as recited in claim 13. Rather, in the abstract, Mulgund *et al.* recite, "A relational database logical design resident on the database server is dynamically updated with respect to the sensor network's current and historical topological information through the use of a traversal and interrogating network modeling agent." Thus, Mulgund *et al.* fail to recite, "one or more multi-mote content indexes," as recited in claim 13. Still further, based on an analysis of the Office action, the above quoted recitations from Mulgund *et al.* and claim 13, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate recitations included in the abstract or paragraphs 0005 or 0025 of Mulgund *et al.* with the recitation of claim 13, "receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a reporting entity at a mote of the first set of motes." Hence, the Office action fails to show how Mulgund *et al.* teach or suggest, "receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a reporting entity at a mote of the first set of motes." Thus, the Office action fails to state a *prima*

facie case of anticipation with respect to claim 13. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 13.

15. Dependent Claim 14 Independently Patentable

Notwithstanding its dependency from Independent Claim 1, Dependent Claim 14 is patentable on its own merits.

Claim 14 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mulgund *et al.* (2002/0161751) in view of Chiloyan *et al.* (US Patent No. 7,165,109). Applicant respectfully traverses the rejection of claim 14.

Claim 1 recites:

> A method comprising:
> aggregating at least a part of one or more mote-addressed content indexes from a first set of motes.
> A system comprising:
> means for transmitting at least a part of an aggregate of one or more mote-addressed content indexes of a first set of motes.

Claim 13 recites:

> The method of Claim 1, wherein said aggregating at least a part of one or more mote-addressed content indexes from a first set of motes further comprises:
> creating an aggregate of at least a part of one or more multi-mote content indexes of the first set of motes.

Claim 14 recites:

> The method of Claim 13, wherein said creating an aggregate of at least a part of one or more multi-mote content indexes of the first set of motes further comprises:
> aggregating at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of a multi-mote content index.

The Office action at page 11, paragraph 15, recites:

Claims 9, 12, 14, 15, 25, 28, 30, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. (2002/0161751) in view of Kung et al. (2005/0021724).

More specifically, the Office action, at pages 12 and 13, paragraph 15, recites:

As to claims 14 and 15, Mulgund shows:
aggregating at least a part of a mote-addressed index of a multi-mote content index (abstract, paragraph [0005] and [0025], Fig. 3, Fig. 4).
Mulgund does not show that a mote-addressed index is a routing/spatial index.
Kung shows determining one or more types of spatial information related to devices of or proximate to the mote (paragraph [0036]).
It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having a mote-addressed routing/spatial index being aggregated in order to determine a global position of a mote that would identify a location of the mote in space (paragraph [0010] in Kung) and relative to other nodes since each of the sensing nodes in communication with one or more other sensing nodes (paragraph [0026] lines 11-17 in Mulgund).
Alternatively to Kung, Madden (reference used in rejection of claim 16) shows a mote-addressed routing/spatial index at a mote (under 2.2 communication in sensor networks, paragraph 2).

Mulgund *et al.* at the abstract recites:

Method of and system for aggregating into a relational database model the state of an ad hoc network comprised of uniquely addressable distributed sensor nodes in communication using networking protocols with one another through links and to a database server through access points. A relational database logical design resident on the database server is dynamically updated with respect to the sensor network's current and historical topological information through the use of a traversal and interrogating network modeling agent. The distributed sensors nodes may be mobile, and may communicate by wired or wireless means through networking protocols such as the Internet.

Mulgund *et al.* at paragraphs 0005 and 0025 recites:

[0005] The tools needed to implement the vision of seamless, global access to remote information are available only in part, and not yet as an integrated package. The Applicants describe below the development of an information architecture, which is referred to in certain embodiments as IntelemetricTM, and a method of using the architecture which make it possible to aggregate, store, process, and distributed, real-time distributed sensor data into the enterprise, and make resulting information readily available over the Internet.

[0025] It is of no concern how this network topology came into being, how it is organized, what routing algorithms are used to pass messages from one node to the next, but rather, how to aggregate the information at each of the nodes into an off-network repository or network model database 12. The sensing nodes 2 may be mobile, and the interconnections may change over time. Furthermore, new nodes may join the network 4 at any time, and existing nodes may leave the network unexpectedly.

Kung *et al.* at paragraph 0036 recites:

[0036] The Internet and most data networks use network addresses, such as IP Address 208.154.23.54. These addresses, however, have no correlation to the node's spatial address, that is, the latitude, longitude, altitude or x,y,z coordinates. For certain embodiments, one may not need to know the spatial address of the responding node. However, if spatial information is needed, the spatial address of any node may be determined by any one of a number of known methods. For example, in some embodiments, one or more of the nodes may have a means for determining the node's spatial address, such as, for example, a Global Positioning System (GPS) device. If any particular node does not have a GPS device, it may be able to determine its own position by communicating with other nodes that do.

Kung *et al.* at paragraph 0010 recites:

[0010] Since sensor data is associated with the physical location of the sensor, determining the spatial coordinates of a sensor is important. Indeed, many efforts to date have focused on perfecting localization techniques. Constraints on cost, size, or power as well as the line-of-sight constraint may preclude the use of global positioning techniques, such as GPS. In this case, self-configuring sensor networks would require to use other localization methods, which could, for example, involve the use of sensors in the network itself.

Mulgund *et al.* at paragraph 0026, lines 8-17 recites:

[0026] FIG. 2 illustrates the nature of each of the sensing nodes 2, which comprise computational devices (possibly ranging in complexity from small embedded platforms to a fully-fledged PCs) that have one or more sensors 16 providing high-value information connected to it. The term sensor is used here in a general sense. A sensor 16 as contemplated herein could be as simple as an instrument that measures temperature, pressure, or any such other physical quantity. It could also be a device as complex as a video camera providing continuous full-motion imagery of some area of interest. In any case, the output of each of these sensors 16 is stored locally in a well-defined knowledge base 18, but the output can be accessed from outside the network 4 through some software application programming interface (API) and hardware implementation. Each of the sensing

nodes 2 is additionally in communication with one or more other sensing nodes through connecting links 3.

Madden *et al.* at paragraph 2 in 2.2 recites:

The requirement that sensor networks be low maintenance and easy to deploy means that communication topologies must be automatically discovered (i.e. ad-hoc) by the devices rather than fixed at the time of network deployment. Typically, devices keep a short list of neighbors who they have heard transmit recently, as well as some routing information about the connectivity of those neighbors to the rest of the network. To assist in making intelligent routing decisions, nodes associate a link quality with each of their neighbors.

Claim 14 recites, "aggregating at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of a multi-mote content index." The Office action cites to Mulgund *et al.* to support the rejection of claim 14.

Mulgund *et al.* at the abstract recites:

Method of and system for aggregating into a relational database model the state of an ad hoc network comprised of uniquely addressable distributed sensor nodes in communication using networking protocols with one another through links and to a database server through access points. A relational database logical design resident on the database server is dynamically updated with respect to the sensor network's current and historical topological information through the use of a traversal and interrogating network modeling agent. The distributed sensors nodes may be mobile, and may communicate by wired or wireless means through networking protocols such as the Internet.

Mulgund *et al.* at paragraphs 0005 and 0025 recites:

[0005] The tools needed to implement the vision of seamless, global access to remote information are available only in part, and not yet as an integrated package. The Applicants describe below the development of an information architecture, which is referred to in certain embodiments as IntelemetricTM, and a method of using the architecture which make it possible to aggregate, store, process, and distributed, real-time distributed sensor data into the enterprise, and make resulting information readily available over the Internet.

[0025] It is of no concern how this network topology came into being, how it is organized, what routing algorithms are used to pass messages from one node to the next, but rather, how to aggregate the information at each of the nodes into an

> off-network repository or network model database 12. The sensing nodes 2 may be mobile, and the interconnections may change over time. Furthermore, new nodes may join the network 4 at any time, and existing nodes may leave the network unexpectedly.

However, Mulgund *et al.* at paragraph at the abstract or paragraphs 0005 or 0025 fails to recite, "aggregating at least a part of at least one of . . . a multi-mote content index." Indeed, the recitations fail to teach or suggest even "a multi-mote content index." Thus, the recitation fails to teach or suggest, "aggregating at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of a multi-mote content index." Further, based on an analysis of the Office action, the above quoted recitations from Mulgund *et al.* and claim 14, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate recitations of Mulgund *et al.* with the recitation of claim 14, "aggregating at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of a multi-mote content index." Hence, the Office action fails to show how Mulgund *et al.* in view of Kung *et al.* teach or suggest, "aggregating at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of a multi-mote content index." Thus, the Office action fails to state a *prima facie* case of obviousness with respect to claim 14. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 14.

16. Dependent Claim 15 Independently Patentable

Notwithstanding its dependency from Independent Claim 1, Dependent Claim 15 is patentable on its own merits.

Claim 15 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mulgund *et al.* (2002/0161751) in view of Chiloyan *et al.* (US Patent No. 7,165,109). Applicant respectfully traverses the rejection of claim 15.

Claim 1 recites:

A method comprising:

aggregating at least a part of one or more mote-addressed content indexes from a first set of motes.

Claim 13 recites:

The method of Claim 1, wherein said aggregating at least a part of one or more mote-addressed content indexes from a first set of motes further comprises:
creating an aggregate of at least a part of one or more multi-mote content indexes of the first set of motes.

Claim 15 is dependent on claim 13. Claim 15 recites:

The method of Claim 13, wherein said creating an aggregate of at least a part of one or more multi-mote content indexes of the first set of motes further comprises:
aggregating at least a part of a mote-addressed routing/spatial index of a multi-mote content index.

The Office action at page 11, paragraph 15, recites:

Claims 9, 12, 14, 15, 25, 28, 30, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. (2002/0161751) in view of Kung et al. (2005/0021724).

More specifically, the Office action, at pages 12 and 13, paragraph 15, recites:

As to claims 14 and 15, Mulgund shows:
aggregating at least a part of a mote-addressed index of a multi-mote content index (abstract, paragraph [0005] and [0025], Fig. 3, Fig. 4).
Mulgund does not show that a mote-addressed index is a routing/spatial index.
Kung shows determining one or more types of spatial information related to devices of or proximate to the mote (paragraph [0036]).
It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having a mote-addressed routing/spatial index being aggregated in order to determine a global position of a mote that would identify a location of the mote in space (paragraph [0010] in Kung) and relative to other nodes since each of the sensing nodes in communication with one or more other sensing nodes (paragraph [0026] lines 11-17 in Mulgund).
Alternatively to Kung, Madden (reference used in rejection of claim 16) shows a mote-addressed routing/spatial index at a mote (under 2.2 communication in sensor networks, paragraph 2).

Mulgund *et al.* at the abstract recites:

Method of and system for aggregating into a relational database model the state of an ad hoc network comprised of uniquely addressable distributed sensor nodes in communication using networking protocols with one another through links and to a database server through access points. A relational database logical design resident on the database server is dynamically updated with respect to the sensor network's current and historical topological information through the use of a traversal and interrogating network modeling agent. The distributed sensors nodes may be mobile, and may communicate by wired or wireless means through networking protocols such as the Internet.

Mulgund *et al.* at paragraphs 0005 and 0025 recites:

[0005] The tools needed to implement the vision of seamless, global access to remote information are available only in part, and not yet as an integrated package. The Applicants describe below the development of an information architecture, which is referred to in certain embodiments as IntelemetricTM, and a method of using the architecture which make it possible to aggregate, store, process, and distributed, real-time distributed sensor data into the enterprise, and make resulting information readily available over the Internet.

[0025] It is of no concern how this network topology came into being, how it is organized, what routing algorithms are used to pass messages from one node to the next, but rather, how to aggregate the information at each of the nodes into an off-network repository or network model database 12. The sensing nodes 2 may be mobile, and the interconnections may change over time. Furthermore, new nodes may join the network 4 at any time, and existing nodes may leave the network unexpectedly.

Kung *et al.* at paragraph 0036 recites:

[0036] The Internet and most data networks use network addresses, such as IP Address 208.154.23.54. These addresses, however, have no correlation to the node's spatial address, that is, the latitude, longitude, altitude or x,y,z coordinates. For certain embodiments, one may not need to know the spatial address of the responding node. However, if spatial information is needed, the spatial address of any node may be determined by any one of a number of known methods. For example, in some embodiments, one or more of the nodes may have a means for determining the node's spatial address, such as, for example, a Global Positioning System (GPS) device. If any particular node does not have a GPS device, it may be able to determine its own position by communicating with other nodes that do.

Kung *et al.* at paragraph 0010 recites:

[0010] Since sensor data is associated with the physical location of the sensor, determining the spatial coordinates of a sensor is important. Indeed, many efforts to date have focused on perfecting localization techniques. Constraints on cost, size, or power as well as the line-of-sight constraint may preclude the use of global positioning techniques, such as GPS. In this case, self-configuring sensor networks would require to use other localization methods, which could, for example, involve the use of sensors in the network itself.

Mulgund *et al.* at paragraph 0026, lines 8-17 recites:

[0026] FIG. 2 illustrates the nature of each of the sensing nodes 2, which comprise computational devices (possibly ranging in complexity from small embedded platforms to a fully-fledged PCs) that have one or more sensors 16 providing high-value information connected to it. The term sensor is used here in a general sense. A sensor 16 as contemplated herein could be as simple as an instrument that measures temperature, pressure, or any such other physical quantity. It could also be a device as complex as a video camera providing continuous full-motion imagery of some area of interest. In any case, the output of each of these sensors 16 is stored locally in a well-defined knowledge base 18, but the output can be accessed from outside the network 4 through some software application programming interface (API) and hardware implementation. Each of the sensing nodes 2 is additionally in communication with one or more other sensing nodes through connecting links 3.

Madden *et al.* at paragraph 2 in 2.2 recites:

The requirement that sensor networks be low maintenance and easy to deploy means that communication topologies must be automatically discovered (i.e. ad-hoc) by the devices rather than fixed at the time of network deployment. Typically, devices keep a short list of neighbors who they have heard transmit recently, as well as some routing information about the connectivity of those neighbors to the rest of the network. To assist in making intelligent routing decisions, nodes associate a link quality with each of their neighbors.

Claim 15 recites, "aggregating at least a part of a mote-addressed routing/spatial index of a multi-mote content index." The Office action cites to Mulgund *et al.* to support the rejection of claim 15.

Mulgund *et al.* at the abstract recites:

Method of and system for aggregating into a relational database model the state of an ad hoc network comprised of uniquely addressable distributed sensor nodes in communication using networking protocols with one another through links and to

a database server through access points. A relational database logical design resident on the database server is dynamically updated with respect to the sensor network's current and historical topological information through the use of a traversal and interrogating network modeling agent. The distributed sensors nodes may be mobile, and may communicate by wired or wireless means through networking protocols such as the Internet.

Mulgund *et al.* at paragraphs 0005 and 0025 recites:

[0005] The tools needed to implement the vision of seamless, global access to remote information are available only in part, and not yet as an integrated package. The Applicants describe below the development of an information architecture, which is referred to in certain embodiments as IntelemetricTM, and a method of using the architecture which make it possible to aggregate, store, process, and distributed, real-time distributed sensor data into the enterprise, and make resulting information readily available over the Internet.

[0025] It is of no concern how this network topology came into being, how it is organized, what routing algorithms are used to pass messages from one node to the next, but rather, how to aggregate the information at each of the nodes into an off-network repository or network model database 12. The sensing nodes 2 may be mobile, and the interconnections may change over time. Furthermore, new nodes may join the network 4 at any time, and existing nodes may leave the network unexpectedly.

However, Mulgund *et al.* at the abstract and paragraphs 0005 and 0025 fails to recite, "aggregating at least a part of at least one of . . . a index of a multi-mote content index." Indeed, the recitations fail to teach or suggest even "a multi-mote content index." Thus, the recitation fails to teach or suggest, "aggregating at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of a multi-mote content index." Further, based on an analysis of the Office action, the above quoted recitations from Mulgund *et al.* and claim 15, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate recitations of Mulgund *et al.* with the recitation of claim 15, "aggregating at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of a multi-mote content index." Hence, the Office action fails to show how Mulgund *et al.* in view of Kung *et al.* teach or suggest, "aggregating at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of a multi-mote content index." Thus, the Office action fails to

state a *prima facie* case of obviousness with respect to claim 15. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 15.

17. Dependent Claim 16 Independently Patentable

Notwithstanding its dependency from Independent Claim 1, Dependent Claim 16 is patentable on its own merits.

Claim 16 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mulgund *et al.* (2002/0161751) in view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden *et al.* Applicant respectfully traverses the rejection of claim 16.

Claim 1 recites:

> A method comprising:
> aggregating at least a part of one or more mote-addressed content indexes from a first set of motes.

Claim 16 recites:

> The method of Claim 1, wherein said aggregating at least a part of one or more mote-addressed content indexes from a first set of motes further comprises:
> migrating to a mote of the first set of motes;
> installing a multi-mote index creation agent at the mote; and
> receiving at least a part of one or more mote-addressed content indexes with the multi-mote index creation unit.

The Office action at page 13, paragraph 16, recites:

> Claims 16, 32, and 34-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. (2002/0161751) in view of 'The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden et al.

The Office action at pages 13 and 14, paragraph 16, recites:

> As to claim 16, Mulgund shows:
> migrating to a mote of the first set of motes [visiting a first sensor node] (paragraph [0007] lines 8-19, paragraph [0062]); and

receiving at least a part of one or more mote-addressed content indexes with the multi-mote index creation agent [interrogating a node with a network modeling agent
retrieving the information stored at the node (paragraph [0044]).
Mulgund shows that each node contains some local memory or other knowledge base for recording sensor output data, which can be retrieved by interrogating the node* (paragraph [0030]), which suggests that there exists some management module that collects data from sensors and stores it in the knowledge base. However, the management module per se is not explicitly shown.
Madden shows installing a multi-mote index creation agent at the mote comprising a TinyDB, which is a distributed query processor that runs on each of the nodes in a sensor network (section 1 Introduction, paragraph 4).
It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by installing .a multi-mote index creation agent at the mote in order to select, join, project, and aggregate data from the sensors (section 1 Introduction, paragraph 4 in Madden).

Mulgund et al. at paragraph 0007 and 0062 recites:

[0007] In another aspect, the present invention is a method of database modeling that makes it possible to create, store, and update a virtual model of a network of sensors within a relational database structure. The network modeling agent dynamically updates various sensor node data and link data that collectively define an instantaneous "state" of the sensor network into the database logical design. The network modeling agent thereby facilitates access, visualization, and the use of a stream of information generated by the network of distributed sensors. The sensor nodes to be interrogated by the network modeling agent are assumed to be uniquely addressable and in communication, using networking protocols, with one another through links and with a database server through one or more access points. A method according to the present invention comprises the steps of discovering and maintaining the distributed sensor network topology by applying at every access point a uqasi-recursive algorithm, which causes the network modeling agent to visit a first sensor node and mark the first node visited, push the marked first node onto a stack, and while the stack is non-empty, query the node at the top of the stack for a list of current links to the node at the top, compare the list of current links to a list of historical links to the node at the top of the stack and update the historical link and historical node information, and if there are no unmarked nodes reachable from a current link then pop the stack, otherwise visit the next reachable unmarked node, mark the next node and push it onto the stack. The network modeling agent builds the database model by updating relational database logical design tables at each step of the discovering step. The agent maintains the database model by periodically reapplying the interrogating algorithm, thereby updating the database model to account for sensor node and link additions and deletions. The periodicity of updates is

preferably such that a near real-time topology of the sensor network is maintained.

[0062] The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database.

Mulgund *et al.* at paragraph 0030 recites:

[0030] each node contains some local memory or other knowledge base 18 for recording sensor output data, which can be retrieved by interrogating the node;

Madden at Introduction, paragraph 4, recites:

We have designed and implemented an ACQP engine, called TinyDB (for more information on TinyDB, see [35]), which is a distributed query processor that runs on each of the nodes in a sensor network. TinyDB runs on the Berkeley Mica mote platform, on top of the TinyOS [23] operating system. We chose this platform because the hardware is readily available from commercial sources [13] and the operating system is relatively mature. TinyDB has many of the features of a traditional query processor (e.g. the ability to select, join, project, and aggregate data), but, as we will discuss in this paper, also incorporates a number of other features designed to minimize power consumption via acquisitional techniques. These techniques, taken in aggregate, can lead to orders of magnitude improvement in power consumption and increased accuracy of query results over non-acquisitional systems that do not actively control when and where data is collected.

Claim 16 recites, "installing a multi-mote index creation agent at the mote."

The Office action cites to Madden *et al.* to support the rejection of claim 16.

Madden at Introduction, paragraph 4, recites:

We have designed and implemented an ACQP engine, called TinyDB (for more information on TinyDB, see [35]), which is a distributed query processor that runs on each of the nodes in a sensor network. TinyDB runs on the Berkeley Mica mote platform, on top of the TinyOS [23] operating system. We chose this platform because the hardware is readily available from commercial sources [13] and the operating system is relatively mature. TinyDB has many of the features of a traditional query processor (e.g. the ability to select, join, project, and aggregate data), but, as we will discuss in this paper, also incorporates a number of other

features designed to minimize power consumption via acquisitional techniques. These techniques, taken in aggregate, can lead to orders of magnitude improvement in power consumption and increased accuracy of query results over non-acquisitional systems that do not actively control when and where data is collected.

However, Madden *et al.* at the Introduction, paragraph 4, fails to recite, "installing a multi-mote index creation agent at the mote." Indeed, the recitations fail to teach or suggest even "a multi-mote index creation agent." Thus, the recitation fails to teach or suggest, "installing a multi-mote index creation agent at the mote." Further, based on an analysis of the Office action, the above quoted recitations from Mulgund *et al.* and claim 16, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate recitations of Mulgund *et al.* with the recitation of claim 16, "installing a multi-mote index creation agent at the mote." Hence, the Office action fails to show how Mulgund *et al.* in view of Madden *et al.* teach or suggest, "installing a multi-mote index creation agent at the mote." Thus, the Office action fails to state a *prima facie* case of obviousness with respect to claim 16. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 16.

18. Independent Claim 33

Claim 33 was rejected under 35 U.S.C. § 102(b) as being anticipated by Mulgund *et al.* (2002/0161751). Applicant respectfully traverses the rejection of claim 33.

Claim 33 recites:

> A system comprising:
> a mote; and
> means for aggregating at least a part of one or more mote-addressed content indexes from a first set of motes, said means for aggregating proximate to a portion of said mote.

The Office action at page 7, paragraph 12, recites:

> Claims 1-4, 7, 8, 10, 11, 13, 17-20, 23, 24, 26, 27, 29, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Mulgund et al. (2002/0161751).

More specifically, the Office action, at page 9, paragraph 12, recites:

As to claim 33, Mulgund shows:
a mote (Fig. 1 node (2)); and
means for aggregating at least a part of one or more mote-addressed content indexes from a first set of motes [sensor network modeling agent (14), Fig. 2), said means for aggregating proximate to said mote (paragraph [0044]).

Mulgund *et al.* at paragraph 0044 recites:

[0044] To build the database representation of the sensor network 4 described above, the NMA 14 employs a means to traverse the network in order to interrogate each node. The NMA 14 employs a quasi-recursive algorithm that is run on the database server 10 to build and maintain the database network model. The NMA 14 is a software agent resident on the database server 10 and written in any compatible computer language, whose responsibility is to build and update this model. As discussed earlier, it is assumed that there exists some software API that allows the NMA 14 to access each node on the network, which is reached via one or more access points 6 that can be reached via Internet protocols from the database server 10.

Claim 33 recites, "means for aggregating at least a part of one or more mote-addressed content indexes from a first set of motes, said means for aggregating proximate to a portion of said mote." Mulgund *et al.* cites to paragraph 0044 provided above in support of the rejection of claim 33. However, in contrast to claim 33, Mulgund *et al.* fail to recite " means for aggregating at least a part of one or more mote-addressed content indexes from a first set of motes, said means for aggregating proximate to a portion of said mote," as recited in claim 33. Rather, in paragraph 044, Mulgund *et al.* recite, " To build the database representation of the sensor network 4 described above, the NMA 14 employs a means to traverse the network in order to interrogate each node." Thus, Mulgund *et al.* fail to recite, "means for aggregating at least a part of one or more mote-addressed content indexes from a first set of motes, said means for aggregating proximate to a portion of said mote," as recited in claim 33. Still further, based on an analysis of the Office action, the above quoted recitations from Mulgund *et al.* and claim 33, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate recitations of paragraph 044 of Mulgund *et al.* with the recitation of claim 33, "means for aggregating at least a part of one or more mote-addressed content indexes from a first set of motes, said means for aggregating

proximate to a portion of said mote." Hence, the Office action fails to show how Mulgund *et al.* teach or suggest, "receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a reporting entity at a mote of the first set of motes." Thus, the Office action fails to state a *prima facie* case of anticipation with respect to claim 33. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 33.

19. Independent Claim 34

Claim 34 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mulgund *et al.* (2002/0161751) in view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden *et al.* Applicant respectfully traverses the rejection of claim 34.

Claim 34 recites:

> A system comprising:
> at least one mote; and
> at least one multi-mote index creation agent resident in said at least one mote, said at least one multi-mote index creation agent configured to index at least a part of at least one mote-addressed content index.

The Office action at page 13, paragraph 16, recites:

> Claims 16, 32, and 34-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. (2002/0161751) in view of 'The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden et al.

More specifically, the Office action at pages 13 and 14, paragraph 16, recites:

> As to claim 34, Mulgund shows
> at least one mote (Fig. 1 node (2)); and
> at least one multi-mote index creation agent [sensor network modeling agent (14), Fig. 2), said at least one multi-mote index creation agent configured to index at

least a part of at least one mote-addressed content index (Fig. 3 and paragraph [0037]).
Mulgund also shows that each node contains some local memory or other knowledge base for recording sensor output data, which can be retrieved by interrogating the node (paragraph [0030]), which suggests that there exists some agent resident in a mote that collects data from sensors and stores it in the local knowledge base, however; the local agent per se is not explicitly shown.
Madden shows a multi-mote index creation agent resident in a mote comprising a TinyDB, which is a distributed query processor that runs on each of the nodes in a sensor network (section 1 Introduction, paragraph 4).
It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having a multi-mote index creation agent resident in the mote in order to select, join, project, and aggregate data from the sensors (section 1 Introduction, paragraph 4 in Madden).

Mulgund *et al*. at paragraph 0037 recites:

[0037] The Nodes Table 20 maintains a list of all known sensor nodes 2 in the network 4. Each node is identified by a unique Node Address, which is a primary key for the Nodes Table 20. The Nodes Table also contains a Status field, which is used to indicate whether a node is known to be active. This field is used for marking nodes that have disappeared from the network (which could later reappear). At present, it is anticipated that this Status variable will take on one of just a small set of mutually exclusive values that indicate whether or not the associated node continues to be an active, reachable member of the network 4. Finally, the Nodes Table 20 contains a Timestamp field that indicates when the Status information was last updated. When a node disappears from the network for whatever reason, the corresponding entry in the Nodes Table 20 is not deleted; it is marked as unreachable. The reason for doing so is explained below.

Mulgund *et al.* at paragraph 0030 recites:

[0030] each node contains some local memory or other knowledge base 18 for recording sensor output data, which can be retrieved by interrogating the node;

Madden *et al.* at Introduction, paragraph 4, recites:

We have designed and implemented an ACQP engine, called TinyDB (for more information on TinyDB, see [35]), which is a distributed query processor that runs on each of the nodes in a sensor network. TinyDB runs on the Berkeley Mica mote platform, on top of the TinyOS [23] operating system. We chose this platform because the hardware is readily available from commercial sources [13] and the operating system is relatively mature. TinyDB has many of the features of a traditional query processor (e.g. the ability to select, join, project, and aggregate

> data), but, as we will discuss in this paper, also incorporates a number of other features designed to minimize power consumption via acquisitional techniques. These techniques, taken in aggregate, can lead to orders of magnitude improvement in power consumption and increased accuracy of query results over non-acquisitional systems that do not actively control when and where data is collected.

Claim 34 recites, "at least one multi-mote index creation agent resident in said at least one mote, said at least one multi-mote index creation agent configured to index at least a part of at least one mote-addressed content index."

The Office action cites to Mulgund *et al.* at paragraph 0037 to support the rejection of claim 34.

Mulgund *et al.*, at paragraph 0037, recites:

> [0037] The Nodes Table 20 maintains a list of all known sensor nodes 2 in the network 4. Each node is identified by a unique Node Address, which is a primary key for the Nodes Table 20. The Nodes Table also contains a Status field, which is used to indicate whether a node is known to be active. This field is used for marking nodes that have disappeared from the network (which could later reappear). At present, it is anticipated that this Status variable will take on one of just a small set of mutually exclusive values that indicate whether or not the associated node continues to be an active, reachable member of the network 4. Finally, the Nodes Table 20 contains a Timestamp field that indicates when the Status information was last updated. When a node disappears from the network for whatever reason, the corresponding entry in the Nodes Table 20 is not deleted; it is marked as unreachable. The reason for doing so is explained below.

However, Mulgund *et al.* at paragraph 0037, fails to recite, "at least one multi-mote index creation agent resident in said at least one mote, said at least one multi-mote index creation agent configured to index at least a part of at least one mote-addressed content index." Indeed, the recitations fail to teach or suggest even "to index . . . index." Thus, the recitation fails to teach or suggest, "at least one multi-mote index creation agent resident in said at least one mote, said at least one multi-mote index creation agent configured to index at least a part of at least one mote-addressed content index." Further, based on an analysis of the Office action, the above quoted recitations from Mulgund *et al.* and claim 34, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should

equate recitations of Mulgund *et al.* with the recitation of claim 34, "at least one multi-mote index creation agent resident in said at least one mote, said at least one multi-mote index creation agent configured to index at least a part of at least one mote-addressed content index." Hence, the Office action fails to show how Mulgund *et al.* in view of Madden *et al.* teach or suggest, "at least one multi-mote index creation agent resident in said at least one mote, said at least one multi-mote index creation agent configured to index at least a part of at least one mote-addressed content index." Thus, the Office action fails to state a *prima facie* case of obviousness with respect to claim 34. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 34.

20. Dependent Claims 35-37 Patentable for at Least Reasons of Dependency from Independent Claim 17

Claims 35-37 depend either directly or indirectly from Independent Claim 34. "A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers." See 35 U.S.C. § 112 paragraph 4. Consequently, Dependent Claims 35-37 are patentable for at least the reasons why Independent Claim 34 is patentable. Accordingly, Applicant respectfully requests that Examiner hold Dependent Claims 35-37 patentable for at least the foregoing reasons, and issue a Notice of Allowability on same.

21. Dependent Claim 35 Independently Patentable

Claim 35 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mulgund *et al.* (2002/0161751) in view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden *et al.* Applicant respectfully traverses the rejection of claim 35.

Claim 34 recites:

> A system comprising:
> at least one mote; and
> at least one multi-mote index creation agent resident in said at least one mote, said at least one multi-mote index creation agent configured to index at least a part of at least one mote-addressed content index.

Claim 35 recites:

The system of Claim 34, wherein said at least one mote-addressed content index further comprises:
at least one of a sensing function, a control function, or routing/spatial information of the mote-appropriate device.

The Office action at page 13, paragraph 16, recites:

Claims 16, 32, and 34-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. (2002/0161751) in view of 'The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden et al.

More specifically, the Office action at page 15, paragraph 16, recites:

As to claim 35, Mulgund in view of Madden shows:
at least one of a sensing function, a control function, or a routing/spatial information of the mote-appropriate device (paragraphs [0037], [0041] in Mulgund) and (under 2.2 Communication in Sensor Networks, paragraph 2 in Madden)..

Mulgund *et al.* at paragraph 0037 recites:

[0037] The Nodes Table 20 maintains a list of all known sensor nodes 2 in the network 4. Each node is identified by a unique Node Address, which is a primary key for the Nodes Table 20. The Nodes Table also contains a Status field, which is used to indicate whether a node is known to be active. This field is used for marking nodes that have disappeared from the network (which could later reappear). At present, it is anticipated that this Status variable will take on one of just a small set of mutually exclusive values that indicate whether or not the associated node continues to be an active, reachable member of the network 4. Finally, the Nodes Table 20 contains a Timestamp field that indicates when the Status information was last updated. When a node disappears from the network for whatever reason, the corresponding entry in the Nodes Table 20 is not deleted; it is marked as unreachable. The reason for doing so is explained below.

Mulgund *et al.* at paragraph 0041 recites:

[0041] FIG. 3 illustrates the simplest case, wherein each node 2 generates n well-defined sensor data signals. The composite primary key for the Sensor Data Table 24 is the identity of the Node Address and a Timestamp, followed by n individual sensor data outputs. This ensures that the only allowable entries are for known

nodes, and that only one entry can be made per node at a given time instant. In this simple case, all Sensor Data is stored in the same Sensor Data Table 24. Each node may have a unique internal sampling rate, and the node itself may be sampled by the database server 10 at different rates; no assumptions are made about these operations. The relationship between this Sensor Data Table 24 and Nodes Table 20 illustrates why entries on individual nodes are not deleted from the Nodes table when they become unreachable: access to historical sensor data from past members of the network is preferred, even if those members are no longer present.

Madden et al. at paragraph 2 of 2.2 recites:

The requirement that sensor networks be low maintenance and easy to deploy means that communication topologies must be automatically discovered (i.e. ad-hoc) by the devices rather than fixed at the time of network deployment. Typically, devices keep a short list of neighbors who they have heard transmit recently, as well as some routing information about the connectivity of those neighbors to the rest of the network. To assist in making intelligent routing decisions, nodes associate a link quality with each of their neighbors.

Claim 35 is dependent on claim 34. For reasons analogous to those stated above, applicant respectfully submits that the Office action fails to state a *prima facie* case of obviousness. Therefore, applicant requests withdrawal of the rejection and reconsideration and allowance of claim 35.

Further, Applicant respectfully submits that the Office action points to no teaching, suggestion, or motivation in the cited material to combine the teachings of Mulgund *et al.* and Madden *et al.* as required under *In re* Sang Su Lee:

It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher." W.L. Gore v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983).

In addition, the Office action provides no rationale for combining Mulgund *et al.* and Madden *et al.*

Thus, assuming *arguendo* that the citations of the material set forth in the Office action teach or suggest the recitations of claim 35, the Office action still fails to state a *prima facie* case

of obviousness with respect to claim 35. Therefore, applicant requests withdrawal of the rejection and reconsideration and allowance of claim 35.

As the Office action provides no rationale for combining Mulgund *et al.* and Madden *et al.* in support of the obvious rejection, applicant concludes that the Examiner is taking "official notice." If the Office maintains the rejection, under 37 CFR 1.104(d)(3) the Examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding. Thus, if the Office maintains the rejection, in the next communication applicant respectfully requests that the Examiner provide an affidavit or declaration setting forth specific factual statements and explanation to support the conclusion that the combination is obvious.

22. Dependent Claim 36 Independently Patentable

Claim 36 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mulgund *et al.* (2002/0161751) in view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden *et al.* Applicant respectfully traverses the rejection of claim 36.

Claim 34 recites:

> A system comprising:
> at least one mote; and
> at least one multi-mote index creation agent resident in said at least one mote, said at least one multi-mote index creation agent configured to index at least a part of at least one mote-addressed content index.

Claim 36 recites:

> The system of Claim 34, wherein said at least one multi-mote index creation agent further comprises:
> a processor configured to obtain at least one of a sensing function, a control function, or routing/spatial information.

The Office action at page 13, paragraph 16, recites:

Claims 16, 32, and 34-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. (2002/0161751) in view of 'The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden et al.

More specifically, the Office action at pages 15 and 16, paragraph 16, recites:

> As to claim 36, Mulgund in view of Madden shows:
> a processor configured to obtain at least a sensing function of the mote (section 2.1 Properties of Sensor Devices, paragraph 2 in Madden).
> It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Mulgund by having a processor in order to process sensor data that is being stored in a knowledge base (Fig. 2 in Mulgund).

Madden *et al.* at paragraph 2 of section 2.1 recites:

> Mica motes have a 4Mhz, 8bit Atmel microprocessor. Their RFM TRI000 radios run at 40 kbits/second over a single shared CSMA channel. Radio messages are variable size. Typically about 10 48-byte messages (the default size in TinyDB) can be delivered per second. Power consumption tends to be dominated by radio communication. When powered on, radios consume about as much power as the processor. However, because communication is so slow, every bit of data transmitted by the radio costs as much energy as executing 1000 CPU instructions. As an additional feature, motes have an external 32kHz clock that the TinyOS operating system can synchronize with neighboring motes +/- 1 ms to ensure that neighbors will be powered up and listening when they wish to send a message[15].

Claim 36 is dependent on claim 34. For reasons analogous to those stated above, applicant respectfully submits that the Office action fails to state a *prima facie* case of obviousness. Therefore, applicant requests withdrawal of the rejection and reconsideration and allowance of claim 36.

Further, Applicant respectfully submits that the Office action points to no teaching, suggestion, or motivation in the cited material to combine the teachings of Mulgund *et al.* and Madden *et al.* as required under *In re* Sang Su Lee:

> It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher." W.L. Gore v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983).

In addition, the Office action provides no rationale for combining Mulgund *et al.* and Madden *et al.*

Thus, assuming *arguendo* that the citations of the material set forth in the Office action teach or suggest the recitations of claim 36, the Office action still fails to state a *prima facie* case of obviousness with respect to claim 36. Therefore, applicant requests withdrawal of the rejection and reconsideration and allowance of claim 36.

As the Office action provides no rationale for combining Mulgund *et al.* and Madden *et al.* in support of the obvious rejection, applicant concludes that the Examiner is taking "official notice." If the Office maintains the rejection, under 37 CFR 1.104(d)(3) the Examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding. Thus, if the Office maintains the rejection, in the next communication applicant respectfully requests that the Examiner provide an affidavit or declaration setting forth specific factual statements and explanation to support the conclusion that the combination is obvious.

23. Dependent Claim 37 Independently Patentable

Claim 37 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mulgund *et al.* (2002/0161751) in view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden *et al.* Applicant respectfully traverses the rejection of claim 37.

Claim 34 recites:

> A system comprising:
> at least one mote; and
> at least one multi-mote index creation agent resident in said at least one mote, said at least one multi-mote index creation agent configured to index at least a part of at least one mote-addressed content index.

Claim 37 recites:

> The system of Claim 34, wherein said at least one mote comprises:
> at least one of a processor, a memory, or a communications device formed from a substrate.

The Office action at page 13, paragraph 16, recites:

Claims 16, 32, and 34-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. (2002/0161751) in view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden et al.

More specifically, the Office action at page 16, paragraph 16, recites:

As to claim 37, Mulgund shows at least one of a processor, a memory, or a communications devices formed from a substrate (paragraph [0026]).

Mulgund *et al.* at paragraph 0026 recites:

[0026] FIG. 2 illustrates the nature of each of the sensing nodes 2, which comprise computational devices (possibly ranging in complexity from small embedded platforms to a fully-fledged PCs) that have one or more sensors 16 providing high-value information connected to it. The term sensor is used here in a general sense. A sensor 16 as contemplated herein could be as simple as an instrument that measures temperature, pressure, or any such other physical quantity. It could also be a device as complex as a video camera providing continuous full-motion imagery of some area of interest. In any case, the output of each of these sensors 16 is stored locally in a well-defined knowledge base 18, but the output can be accessed from outside the network 4 through some software application programming interface (API) and hardware implementation. Each of the sensing nodes 2 is additionally in communication with one or more other sensing nodes through connecting links 3.

Claim 37 is dependent on claim 34. For reasons analogous to those stated above, applicant respectfully submits that the Office action fails to state a *prima facie* case of obviousness. Therefore, applicant requests withdrawal of the rejection and reconsideration and allowance of claim 37.

Further, Applicant respectfully submits that the Office action points to no teaching, suggestion, or motivation in the cited material to combine the teachings of Mulgund *et al.* and Madden *et al.* as required under *In re* Sang Su Lee:

It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor

taught against its teacher." W.L. Gore v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983).

In addition, the Office action provides no rationale for combining Mulgund *et al.* and Madden *et al.*

Thus, assuming *arguendo* that the citations of the material set forth in the Office action teach or suggest the recitations of claim 37, the Office action still fails to state a *prima facie* case of obviousness with respect to claim 37. Therefore, applicant requests withdrawal of the rejection and reconsideration and allowance of claim 37.

As the Office action provides no rationale for combining Mulgund *et al.* and Madden *et al.* in support of the obvious rejection, applicant concludes that the Examiner is taking "official notice." If the Office maintains the rejection, under 37 CFR 1.104(d)(3) the Examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding. Thus, if the Office maintains the rejection, in the next communication applicant respectfully requests that the Examiner provide an affidavit or declaration setting forth specific factual statements and explanation to support the conclusion that the combination is obvious.

24. Independent Claim 38

Claim 38 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mulgund *et al.* (2002/0161751) in view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden *et al.* Applicant respectfully traverses the rejection of claim 38.

Claim 38 recites:

> A system comprising:
> at least one mote; and
> at least one multi-mote registry resident in said at least one mote, said at least one multi-mote registry having one or more indicators of one or more motes to be indexed.

The Office action at page 13, paragraph 16, recites:

Claims 16, 32, and 34-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. (2002/0161751) in view of 'The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden et al.

More specifically, the Office action at page 16, paragraph 16, recites:

As to claim 38, Mulgund shows:
at least one mote (node (2) in Fig. 1); and
at least one multi-mote registry [Nodes Table (20)], said at least one multi:mote registry having one or more indicators of one or more motes to be indexed (paragraphs [0037], [0061] and [0063], second column (CAL) in table 1). •
Mulgund does not show that at least one multi-mote registry is resident in said at least one mote.
Madden shows a multi-mote registry [a short list] resident in a mote (under 9 Communication in Sensor Networks, paragraph 2).
It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having a multi-mote registry being resident in the mote in order to keep a list of neighbors who they have heard transmit recently, as well as some routing information about the connectivity of those neighbors (under 2.2 Communication in Sensor Networks, paragraph 2) (similar to information about child nodes in Mulgund, Table 1, second column).

Mulgund *et al.* at paragraphs 0037, 0061, and 0063 recites:

[0037] The Nodes Table 20 maintains a list of all known sensor nodes 2 in the network 4. Each node is identified by a unique Node Address, which is a primary key for the Nodes Table 20. The Nodes Table also contains a Status field, which is used to indicate whether a node is known to be active. This field is used for marking nodes that have disappeared from the network (which could later reappear). At present, it is anticipated that this Status variable will take on one of just a small set of mutually exclusive values that indicate whether or not the associated node continues to be an active, reachable member of the network 4. Finally, the Nodes Table 20 contains a Timestamp field that indicates when the Status information was last updated. When a node disappears from the network for whatever reason, the corresponding entry in the Nodes Table 20 is not deleted; it is marked as unreachable. The reason for doing so is explained below.

[0061] Table 1 provides details of the process by which the network 4 is traversed. The first column of Table 1 shows the node stack maintained by the NMA 14. The second column (CAL) shows the current links from the Node at the top of the stack. The third column (HAL) shows the links that were obtained from the node at the top of the node stack in a previous sweep of the entire network. The fourth column shows the actions performed inside the for-loop of the pseudo-code.

[0063] Next, the NMA 14 examines the node at the top of the stack. If the stack is empty, the NMA 14 has completed traversal. If the stack is non-empty, the NMA 14 looks at the node at the top of the stack, and then queries the node for all its link information. On obtaining this information, the NMA 14 compares it to the link information obtained from the node in the previous sweep of the network. No difference between the CAL and HAL for node A32 is seen. The NMA 14 then examines each link 3 of the currently visited node and the node at the other end of the link. If the NMA 14 has not seen (marked) the node on the other end of the link before, it visits the node on the other end of the link and pushes it on the stack. The NMA 14 then marks the node as visited by assigning a visit order number to it, and by assigning a Timestamp representing the time it was visited. In our example, CAL consists of links {AB}33, {AC}35.

Madden *et al.* at paragraph 2 of section 2.1 recites:

Mica motes have a 4Mhz, 8bit Atmel microprocessor. Their RFM TRI000 radios run at 40 kbits/second over a single shared CSMA channel. Radio messages are variable size. Typically about 10 48-byte messages (the default size in TinyDB) can be delivered per second. Power consumption tends to be dominated by radio communication. When powered on, radios consume about as much power as the processor. However, because communication is so slow, every bit of data transmitted by the radio costs as much energy as executing 1000 CPU instructions. As an additional feature, motes have an external 32kHz clock that the TinyOS operating system can synchronize with neighboring motes +/- 1 ms to ensure that neighbors will be powered up and listening when they wish to send a message[15].

Claim 38 recites, "at least one multi-mote registry resident in said at least one mote, said at least one multi-mote registry having one or more indicators of one or more motes to be indexed."

The Office action cites to Mulgund *et al.* at paragraphs 0031, 0037, and 0062 to support the rejection of claim 38.

Mulgund *et al.* at paragraphs 0037, 0061, and 0063 recites:

[0037] The Nodes Table 20 maintains a list of all known sensor nodes 2 in the network 4. Each node is identified by a unique Node Address, which is a primary key for the Nodes Table 20. The Nodes Table also contains a Status field, which is used to indicate whether a node is known to be active. This field is used for marking nodes that have disappeared from the network (which could later reappear). At present, it is anticipated that this Status variable will take on one of

> just a small set of mutually exclusive values that indicate whether or not the associated node continues to be an active, reachable member of the network 4. Finally, the Nodes Table 20 contains a Timestamp field that indicates when the Status information was last updated. When a node disappears from the network for whatever reason, the corresponding entry in the Nodes Table 20 is not deleted; it is marked as unreachable. The reason for doing so is explained below.
>
> [0061] Table 1 provides details of the process by which the network 4 is traversed. The first column of Table 1 shows the node stack maintained by the NMA 14. The second column (CAL) shows the current links from the Node at the top of the stack. The third column (HAL) shows the links that were obtained from the node at the top of the node stack in a previous sweep of the entire network. The fourth column shows the actions performed inside the for-loop of the pseudo-code.
>
> [0063] Next, the NMA 14 examines the node at the top of the stack. If the stack is empty, the NMA 14 has completed traversal. If the stack is non-empty, the NMA 14 looks at the node at the top of the stack, and then queries the node for all its link information. On obtaining this information, the NMA 14 compares it to the link information obtained from the node in the previous sweep of the network. No difference between the CAL and HAL for node A32 is seen. The NMA 14 then examines each link 3 of the currently visited node and the node at the other end of the link. If the NMA 14 has not seen (marked) the node on the other end of the link before, it visits the node on the other end of the link and pushes it on the stack. The NMA 14 then marks the node as visited by assigning a visit order number to it, and by assigning a Timestamp representing the time it was visited. In our example, CAL consists of links {AB}33, {AC}35.

However, Mulgund *et al.* fail to recite, "at least one multi-mote registry resident in said at least one mote, said at least one multi-mote registry having one or more indicators of one or more motes to be indexed." Indeed, the recitations fail to teach or suggest even "one or more indicators of one or more motes to be indexed." Thus, the recitation fails to teach or suggest, "one or more indicators of one or more motes to be indexed." Further, based on an analysis of the Office action, the above quoted recitations from Mulgund *et al.* and claim 38, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate recitations of Mulgund *et al.* with the recitation of claim 38, "one or more indicators of one or more motes to be indexed." Hence, the Office action fails to show how Mulgund *et al.* in view of Madden *et al.* teach or suggest, "at least one multi-mote registry resident in said at least one mote, said at least one multi-mote registry having one or more indicators of one or more motes to be indexed." Thus, the Office

action fails to state a *prima facie* case of obviousness with respect to claim 38. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 38.

25. Dependent Claim 39 Patentable for at Least Reasons of Dependency from Independent Claim 38

Claim 39 depends either directly or indirectly from Independent Claim 38. "A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers." See 35 U.S.C. § 112 paragraph 4. Consequently, Dependent Claim 39 is patentable for at least the reasons why Independent Claim 38 is patentable. Accordingly, Applicant respectfully requests that Examiner hold Dependent Claim 39 patentable for at least the foregoing reasons, and issue a Notice of Allowability on same.

26. Dependent Claim 39 Independently Patentable

Claim 39 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mulgund *et al.* (2002/0161751) in view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden *et al.* Applicant respectfully traverses the rejection of claim 39.

Claim 38 recites:

> A system comprising:
> at least one mote; and
> at least one multi-mote registry resident in said at least one mote, said at least one multi-mote registry having one or more indicators of one or more motes to be indexed.

Claim 39 recites:

> The system of Claim 38, wherein the one or more indicators of one or more motes to be indexed comprise:
> one or more mote-network addresses.

The Office action at page 13, paragraph 16, recites:

Claims 16, 32, and 34-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. (2002/0161751) in view of 'The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden et al.

More specifically, the Office action at page 16, paragraph 16, recites:

As to claim 39, Mulgund shows that one or more indicators of one or more motes to be indexed comprise one or more mote-network addresses (paragraph [0037]). Mulgund et al. at paragraph 0037 recites:

[0037] The Nodes Table 20 maintains a list of all known sensor nodes 2 in the network 4. Each node is identified by a unique Node Address, which is a primary key for the Nodes Table 20. The Nodes Table also contains a Status field, which is used to indicate whether a node is known to be active. This field is used for marking nodes that have disappeared from the network (which could later reappear). At present, it is anticipated that this Status variable will take on one of just a small set of mutually exclusive values that indicate whether or not the associated node continues to be an active, reachable member of the network 4. Finally, the Nodes Table 20 contains a Timestamp field that indicates when the Status information was last updated. When a node disappears from the network for whatever reason, the corresponding entry in the Nodes Table 20 is not deleted; it is marked as unreachable. The reason for doing so is explained below.

Claim 38 recites, " wherein the one or more indicators of one or more motes to be indexed comprise: one or more mote-network addresses." The Office action cites to Mulgund *et al.* at paragraph 0037 to support the rejection of claim 38.

Mulgund *et al.* at paragraph 0037 recites:

[0037] The Nodes Table 20 maintains a list of all known sensor nodes 2 in the network 4. Each node is identified by a unique Node Address, which is a primary key for the Nodes Table 20. The Nodes Table also contains a Status field, which is used to indicate whether a node is known to be active. This field is used for marking nodes that have disappeared from the network (which could later reappear). At present, it is anticipated that this Status variable will take on one of just a small set of mutually exclusive values that indicate whether or not the associated node continues to be an active, reachable member of the network 4. Finally, the Nodes Table 20 contains a Timestamp field that indicates when the Status information was last updated. When a node disappears from the network for whatever reason, the corresponding entry in the Nodes Table 20 is not deleted; it is marked as unreachable. The reason for doing so is explained below.

However, Mulgund *et al.* fail to recite, "wherein the one or more indicators of one or more motes to be indexed comprise: one or more mote-network addresses." Thus, the recitation fails to teach or suggest, "wherein the one or more indicators of one or more motes to be indexed comprise: one or more mote-network addresses." Further, based on an analysis of the Office action, the above quoted recitations from Mulgund *et al.* and claim 39, Applicant respectfully submits that the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate recitations of Mulgund *et al.* with the recitation of claim 39, "wherein the one or more indicators of one or more motes to be indexed comprise: one or more mote-network addresses." Hence, the Office action fails to show how Mulgund *et al.* in view of Madden *et al.* teach or suggest, "wherein the one or more indicators of one or more motes to be indexed comprise: one or more mote-network addresses." Thus, the Office action fails to state a *prima facie* case of obviousness with respect to claim 39. Therefore, Applicant requests withdrawal of the rejection and reconsideration and allowance of claim 39.

C. Technical Material Cited by Examiner Does Not Show Recitations of Independent Claim 17 and Dependent Claims 18-32 as Presented Herein; Notice of Allowability of Same Respectfully Requested

Independent Claim 17 and Dependent Claims 18-32 are respective "means for" versions of Independent Claim 1 and Dependent Claims 2-16. Applicant respectfully points out that, with respect to "means for" claims, MPEP § 2182, *Scope of the Search and Identification of the Prior Art*, states that with respect to patentability examination of means for claims "the *application* of a prior art *reference* to a *means* or step *plus function* limitation *requires* that the *prior art* element *perform* the *identical function specified in the claim.*"

In view of these MPEP guidelines, Applicant respectfully suggests that the art of record does not establish a *prima facie* case of the unpatentability of Independent Claim 17 and Dependent Claims 18-32 for reasons analogous to those why such art does not establish a *prima facie* case of unpatentability of Independent Claim 1 and Dependent Claims 2-16 (e.g., since the functions of Independent Claim 17 are similar to the operations of Independent Claim 1, Examiner has not established a *prima facie* case that means performing the functions of

Independent Claim 17 are taught in the art; other claims are like patentable by extension). Hence, Independent Claim 17 and Dependent Claims 18-32 are patentable for at least the reasons why Independent Claim 1 and Dependent Claims 2-16 are patentable. Accordingly, Applicant respectfully requests that Examiner hold Independent Claim 17 and Dependent Claims 18-32 patentable for at least the reasons as set forth related to Independent Claim 1 and Dependent Claims 2-16, and to thus issue a Notice of Allowability of same.

IV. ARGUMENT: CLAIMS 17-32 ARE DIRECTED TOWARD STATUTORY SUBJECT MATTER

Claims 17-32 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject mater. Applicant respectfully traverses the rejection of claims 17-32.

Claim 17 recites:

> A system comprising:
> means for aggregating at least a part of one or more mote-addressed content indexes from a first set of motes.

The Office action at page 4, paragraph 6 recites:

> As to claim 17, multi-mode index creation agent appears to be a computer program (specification, page 15, lines 9-12) (for the interpretation of means plus function language please refer to Claim Rejections - 35 USC § 112 section of the Office Action). A system comprising a computer program per se is not in one of the staturoy [sic] categories.

Thus, in support of the rejection of claim 17, the Office action recites, "multi-mode index creation agent appears to be a computer program." However, claim 17 does not recite "multi-mode index creation agent." Thus, the grounds (i.e., "multi-mode index creation agent appears to be a computer program") of the rejection set forth in the Office action" fails to support a rejection of claim 17 under 101. As the rejection includes no other grounds for the rejection, the Office action fails to establish that claim 17 is directed to non-statutory subject matter. Therefore, applicant requests withdrawal of the rejection and reconsideration and allowance of claim 21.

Further, the Office action recites, "A system comprising a computer program per se is not in one of the statutory categories." Applicant respectfully submits that this is not a correct statement of the law. A system "comprising" a computer program may include other recitations and therefore may constitute patentable subject matter.

In re Alappat , 33 F.3d 1526, 31 USPQ2d 1545 (Fed. Cir. 1994 (en banc), is a case on point. Independent claim 15, the claim at issue in *In re Alappat*, was a "means plus function" claim similar in structure to Applicants' "means plus function" claim 17. In response to the argument that the claimed invention of *In re Alappat* covered a general purpose computer and was therefore not patentable subject matter, the Federal Circuit stated, ". . . a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program sware." The Federal Circuit further stated, ". . . a computer operating pursuant to software may represent patentable subject matter . . . ." Applicants' claim 17, like claim 15 of I*n re Alappat*, is a "means plus function" claim that can convert a general purpose computer into a special purpose computer once the general purpose computer is programmed to perform the functions recited in the claims. Further, Applicants' application, at page 39, line 28-40, and page 40, lines 1-26, includes recitation of:

> . . . those skilled in the art will recognize that some aspects of the embodiments disclosed herein, in whole or in part, can be equivalently implemented in standard integrated circuits, as **one or more computer programs running on one or more computers (e.g., as one or more programs running on one or more computer systems), as one or more programs running on one or more processors (e.g., as one or more programs running on one or more microprocessors)**
> ...
> In a general sense, those skilled in the art will recognize that the various aspects described herein which can be implemented, individually and/or collectively, by a wide range of hardware, software, firmware, or any combination thereof can be viewed as being composed of various types of "electrical circuitry." Consequently, as used herein "electrical circuitry" includes, but is not limited to, electrical circuitry having at least one discrete electrical circuit, electrical circuitry having at least one integrated circuit, electrical circuitry having at least one application specific integrated circuit, electrical circuitry forming a general purpose computing device configured by a computer program (e.g., a general purpose computer configured by a computer program which at least partially carries out processes and/or devices described herein, or a microprocessor

configured by a computer program which at least partially carries out processes and/or devices described herein).

Thus, in view of *In re Alappat*, claim 17 constitutes patentable subject matter. Therefore, Applicants' request withdrawal of the rejection and reconsideration and allowance of claim 17.

Claims 18-32 are dependent on claim 17. For reasons analogous to those stated above, applicant requests withdrawal of the rejections and reconsideration and allowance of claims 18-32.

V. ARGUMENT: CLAIMS 33, 34, AND 36 UNDER 35 U.S.C. § 112, SECOND PARAGRAPH ARE NOT INDEFINITE

Claims 16, 32, 33, 34, and 36 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant respectfully traverses the rejections of claims 33, 34, and 36.

The Office action, at page 6, recites, "As to claims 16 and 32, it is ambiguous because it is unclear if a multi-mote index creation agent is the same element as a multi-mote index creation unit. If it is the same element, consistent naming must be used to avoid ambiguity. If it is a different element, then the multi-mote index creation unit is lacking antecedent basis."

Claims 16 and 32 have been amended to clarify. No new matter has been added. Therefore, applicant requests withdrawal of the rejection and reconsideration and allowance of claims 16 and 32.

The Office action, at page 6, recites, "As to clam 33, it is ambiguous because it is unclear what is being meant by "proximate to a portion of said mote". Appropriate correction or explanation is required."

Claim 33 recites:

33. A system comprising:
 a mote; and

means for aggregating at least a part of one or more mote-addressed content indexes from a first set of motes, said means for aggregating proximate to a portion of said mote.

The Office action, at page 6, recites, "As to claim 34, "...configured to index at least a part of at least one mote-addressed content index" is ambiguous because it is not clear what is being meant by indexing the index."

Claim 34 recites:

34. A system comprising:
at least one mote; and
at least one multi-mote index creation agent resident in said at least one mote, said at least one multi-mote index creation agent configured to index at least a part of at least one mote-addressed content index.

Applicant respectfully submits that claim 34 is unambiguous, as "to index at least a part of at least one mote-addressed content index" is clear on its face. Therefore, the Office action fails to establish a *prima facie* case of unpatentability. Therefore, applicant requests withdrawal of the rejection and reconsideration and allowance of claim 34.

The Office action, at page 6, recites, "As to claim 36, it is ambiguous because it is unclear how a multi-mote index creation agent, which is a software program, comprises a processor, which appears to be a hardware component."

Claim 36 recites:

36. The system of Claim 34, wherein said at least one multi-mote index creation agent further comprises:
a processor configured to obtain at least one of a sensing function, a control function, or routing/spatial information.

Applicant respectfully submits that claim 36 is unambiguous. The Office action asserts that "a multi-mote index creation agent, . . . is a software program." Applicant respectfully submits that claim 36 includes no recitation of "a software program." Thus, "a multi-mote index creation agent" may not be limited to "a software program." However, assuming *arguendo*, that "a multi-mote index creation agent" includes "a software program," that in no way excludes "a

multi-mote index creation agent" from including a processor. Therefore, applicant requests withdrawal of the rejection and reconsideration and allowance of claim 36.

VI. ARGUMENT: OBJECTION TO THE ABSTRACT OF THE DISCLOSURE IS IMPROPER

The Office action, at page 3, raises an objection to the abstract of the disclosure under MPEP §608.01(b). Applicant respectfully traverses the objection to the disclosure.

Independent claim 1 recites, "aggregating at least a part of one or more mote-addressed content indexes from a first set of motes." The abstract recites, "Methods and/or systems relating to mote networks having one or more indexes." Thus, the abstract includes recitations included in the independent claims. Hence, applicant respectfully submits that the abstract permits one "to determine quickly . . . the nature and gist of the technical disclosure." Therefore, applicant requests withdrawal of the objection.

VII. ARGUMENT: OBJECTION TO THE SPECIFICATION IS IMPROPER

The Office action, at page 3, raises an objection to the specification. Applicant respectfully traverses the objection to the specification.

Applicant respectfully submits that at this time the proper scope of the specification cannot be determined as the prosecution of the application is not complete. If the Office maintains this objection in the next Office action, Applicant requests that the Office action include citation to legal authority, such as citation to statutes or regulations, in support of the objection.

VIII. CONCLUSION

Applicant may have during the course of prosecution cancelled and/or amended one or more claims. Applicant notes that any such cancellations and/or amendments will have transpired (i) prior to issuance and (ii) in the context of the rules that govern claim interpretation during prosecution before the United States Patent and Trademark Office (USPTO). Applicant

notes that the rules that govern claim interpretation during prosecution form a radically different context than the rules that govern claim interpretation subsequent to a patent issuing. Accordingly, Applicant respectfully submits that any cancellations and/or amendments during the course of prosecution should be held to be tangential to and/or unrelated to patentability in the event that such cancellations and/or amendments are viewed in a post-issuance context under post-issuance claim interpretation rules.

Insofar as that the Applicant may have during the course of prosecution cancelled/amended claims sufficient to obtain a Notice of Allowability of all claims pending, Applicant may not have during the course of prosecution explicitly addressed all rejections and/or statements in Examiner's Office Action. The fact that rejections and/or statements may not be explicitly addressed during the course of prosecution should NOT be taken as an admission of any sort, and Applicant hereby reserves any and all rights to contest such rejections and/or statements at a later time. Specifically, no waiver (legal, factual, or otherwise), implicit or explicit, is hereby intended (e.g., with respect to any facts of which Examiner took Official Notice, and/or for which Examiner has supplied no objective showing, Applicant hereby contests those facts and requests express documentary proof of such facts at such time at which such facts may become relevant). For example, although not expressly set forth during the course of prosecution, Applicant continues to assert all points of (e.g. caused by, resulting from, responsive to, etc.) any previous Office Action, and no waiver (legal, factual, or otherwise), implicit or explicit, is hereby intended. Specifically, insofar as that Applicant does not consider the cancelled/unamended claims to be unpatentable, Applicant hereby gives notice that it may intend to file and/or has filed a continuing application in order prosecute such cancelled/unamended claims.

While particular aspects of the present subject matter described herein have been shown and described, it will be apparent to those skilled in the art that, based upon the teachings herein, changes and modifications may be made without departing from the subject matter described herein and its broader aspects and, therefore, the appended claims are to encompass within their scope all such changes and modifications as are within the true spirit and scope of the subject matter described herein. Furthermore, in those instances where a convention analogous to "at least one of A, B, and C, etc." is used, in general such a construction is intended in the sense one

having skill in the art would understand the convention (e.g., " a system having at least one of A, B, and C" would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, etc.). In those instances where a convention analogous to "at least one of A, B, or C, etc." is used, in general such a construction is intended in the sense one having skill in the art would understand the convention (e.g., " a system having at least one of A, B, or C" would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, etc.). It will be further understood by those within the art that virtually any disjunctive word and/or phrase presenting two or more alternative terms, whether in the description, claims, or drawings, should be understood to contemplate the possibilities of including one of the terms, either of the terms, or both terms. For example, the phrase "A or B" will be understood to include the possibilities of "A" or "B" or "A and B."

With respect to any cancelled claims, such cancelled claims were and continue to be a part of the original and/or present patent application(s). Applicant hereby reserves all rights to present any cancelled claim or claims for examination at a later time in this or another application. Applicant hereby gives public notice that any cancelled claims are still to be considered as present in all related patent application(s) (e.g. the original and/or present patent application) for all appropriate purposes (e.g., written description and/or enablement). Applicant does NOT intend to dedicate the subject matter of any cancelled claims to the public.

The Examiner is encouraged to contact the undersigned by telephone at (952) 876-4093 to discuss the above and any other distinctions between the claims and the applied references, if desired. Also, if the Examiner notes any informalities in the claims, he is encouraged to contact the undersigned to expediently correct such informalities.

Respectfully submitted,

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DJP

Enclosures:
- Postcard
- Check
- Petition for Extension of Time
- Post-Filing Transmittal

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